Electronics: Its role in M/W automation

P. 46

ilway TRACK and

March 1961

cCormick Place

ne of AREA meeting,

## STRUCTURES

Annual

## **EQUIPMENT ECONOMIES**

number

New aids for cropping rails in track

Conveyor used for bridge-tie renewals

GN's new repair shop for M/W machines

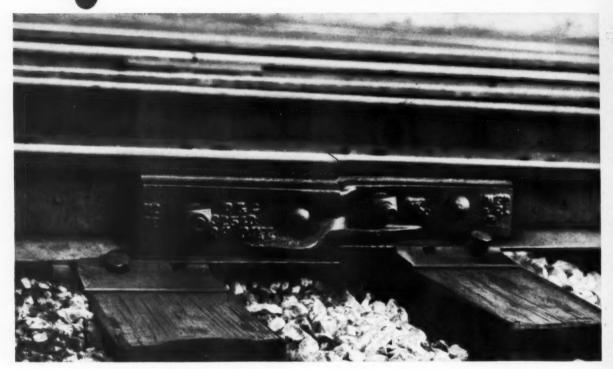
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NRAA exhibit



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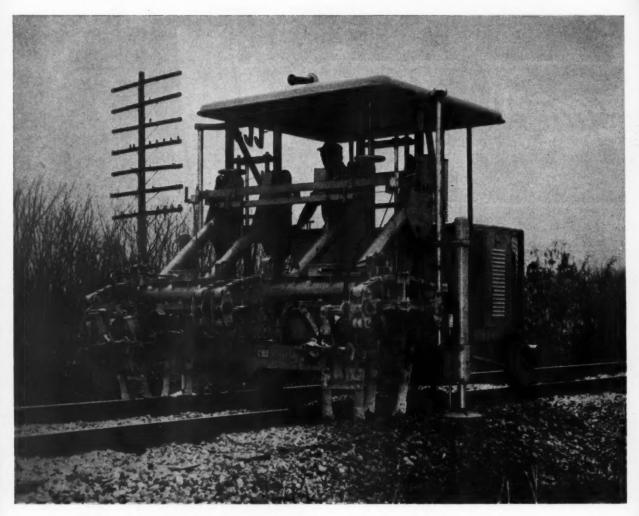
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RAILWAY TRACK and STRUCTURES

## STRUCTURES

1961 • Vol. 57, No. 3

### **Features**

- What railroads need today ..... Writing as our guest editor, President E. J. Brown of AREA urges railroaders to exercise more enterprise and imagination.
- Electronics: Its role in M/W automation Possibilities are explored in unique "brainstorming" staff conference of engineering and electronics officers on C&NW.
- AREA, NRAA under the same roof . . Program of AREA annual meeting being held at McCormick Place, Chicago, scene of products exhibit by member companies of NRAA.
- Exhibitors offer many new products Gives complete information about NRAA exhibit, including brief descriptions of new products, each keyed to a handy reader service card.
- Adopts dry filters for M/W engines In taking this step the New York Central is convinced that engine life will be extended and filter-element replacement made easier.
- New aids for rail cropping in track ...... 52 \*\* Increased interest among the railroads in this practice has sparked the development of special saws and multiple-spindle drills.
- Conveyor cuts tie-renewal cost on long bridge Substantial savings were effected on CNR's Victoria bridge through the use of a roller conveyor for handling the old and new ties.
- GN gains from central M/W repair shop ..... Advantages being realized from new facility established at Superior, Wis., include specialized repairmen, faster repairs, better work, lower costs.
- Snow blower cleans switch leads Mobile unit developed on Milwaukee produces 100-mph blast that cleans off snow and other loose materials down to frozen ballast.

### **Departments**

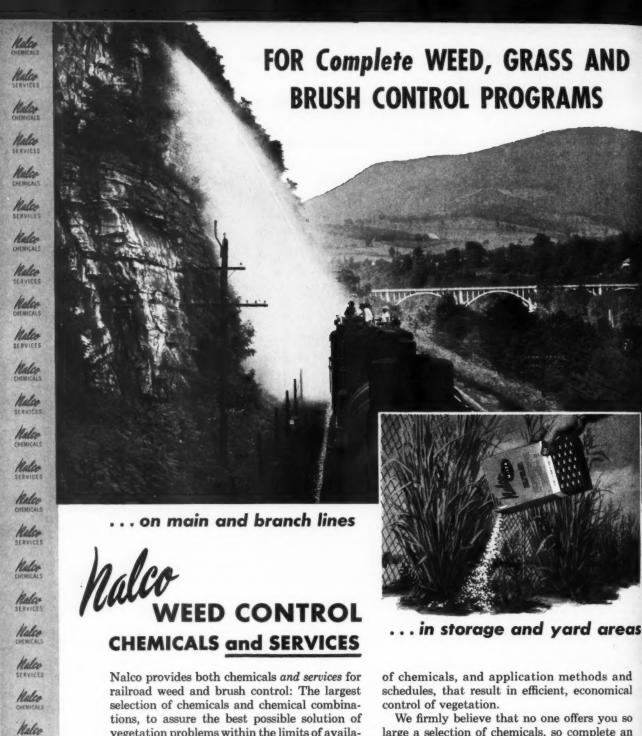
News about people Biographical briefs ..... 13 20 News briefs in pictures ..... Products 80 Association news Supply trade news .....

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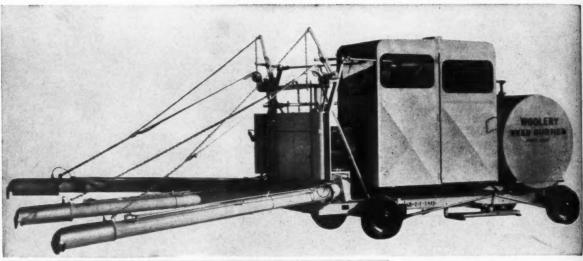
That's why it is so important to continue to make new switch lamp conversions as rapidly as possible ... that's why it is so desirable to expedite, whenever conditions will permit, your planned program that will ultimately result in the maximum savings when <u>all</u> your switch lamps are operating with Edison Carbonaire Batteries.

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The model WB-2-F (above) has automatic transmission with torque converter; constant blower speed regardless of rate of travel; an all steel cab with safety glass, two entirely separate brake systems and a final drive with chains and sprockets located outside the wheels for easy adjustment. A separate 15-H.P. air-cooled engine is used to drive the blower. Thus when speed is reduced—such as is necessary in yard or snow melting workthe blower speed maintains the same rate and heat intensity.

The model COE (above) makes use of a torque converter on the propelling engine which gives any speed desired for burning or deadheading. It burns to a width of 25 feet using all five burners. If desired, a second trip can be made with the two outer arms extended to an additional width of five feet on each side. Burners are under separate and instantaneous control of the operator. The two outer arms can be raised or lowered or can swing in or out to coincide with the contour of the ground. Other Woolery Burners inculde the Model PB-B, 3 burner portable and the AB single burner portable (shown at right).

#### TIE CUTTERS - TIE-END REMOVERS

The Woolery Tie Cutter is a sturdy, light-weight machine that replaces ties with a minimum amount of disturbance to line or surface of the track. A reciprocating saw blade cuts the ties just inside the tie plate on both sides. The center piece is pried out and the Woolery Tie End Remover pushes the ends out thru use of a double-acting, double-ended hydraulic cylinder.





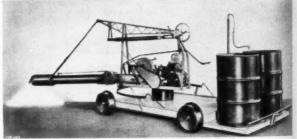
A simple turn of the valve handle causes the two tie ends to be pushed com-pletely clear of the rail.



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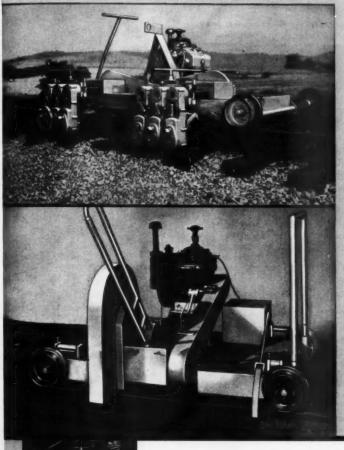
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The Woolery Spike Driver is designed pri-marily for use by the renewal gangs. Var-ious other pneumatic tools can also be operated with it. Rubber-tired set-off wheels.

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### with new 6-HOLE RAIL DRILL and HI-SPEED RAIL CUTTER

Now you can restore worn rail joints in-track to better than new with substantial savings in time, effort and expense. Working in tandem, the NCG 6-hole Rail Drill straddles a worn-out rail joint and simultaneously bores six accurately spaced bolt holes. Gone is the laborious drilling of each bolt hole. Then the NCG Hi-speed Rail Cutter crops out the worn joint section. In 60 seconds or less, it cuts a perfectly square, smooth rail end. The rails are pulled together, spliced, and the job is done.

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#### NCG Hi-speed Rail Cutter

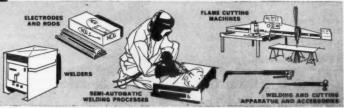
- Rotating abrasive wheel cuts a rail in 60 seconds or less... no coolant required
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- action . . . longer wheel life 
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UCTURE

CANADIAN NATIONAL-G. Fortin and J. E. R. Luguce have been appointed assistant engineers (maintenance) at Quebec, Que. A. J. Brunet has been appointed assistant engineer (technical) with headquarters at Quebec. N. M. Sokolowski has been appointed assistant engineer at Toronto, Ont. R. G. Messenger, special engineer at Montreal, Que., has been promoted to transportation engineer there, succeeding E. H. Gilliatt, who has been transferred.

Eric P. Stephenson, system project engineer, Montreal, Que., has been promoted to manager of the Maritime Area at Moncton, N. B., succeeding David W. Blair, resigned. The following appointments have been made as the result of the reorganization of this company's territorial setup: C. E. Reynolds, division engineer at Quebec, to area engineer, Quebec Area, at Quebec; R. Fraser Mac-Kenzie, district engineer at Moncton, to area engineer, Maritime Area, at Moncton; J. C. MacLauchlan, division engineer at Halifax, N. S., to area engineer, Chaleur Area, at Campbellton, N. B.; Mervyn B. Martin, division engineer at Campbellton, to assistant area engineer, Chaleur Area; Phillip R. Richards, assistant division engineer at Edmundston, N. B., to resident engineer, Chaleur Area, at Edmundston; Ronald Gillespie, division engineer at Edmundston, to resident engineer, Chaleur Area, at Edmundston; C. D. Worby, district engineer at Vancouver, B. C., to area engineer, British Columbia Area, at Vancouver; J. E. Troyer and A. E. Monaghan, to assistant engineers - maintenance, Northern Ontario Area, at Capreol, Ont.; 5. M. Jones to assistant engineer-technical. Northern Ontario Area at Capreol; R. C. Weller to assistant engineer-maintenance, London Area, at London, Ont.; and N. Field to assistant engineer-technical, London Area, at London.

CANADIAN PACIFIC-R. R. Morrish, division engineer at Schreiber, Ont., has been transferred to the Smiths Falls division, succeeding P. C. Fuller, promoted.

ERIE-LACKAWANNA - Willard A. Schwartz, assistant engineer maintenance of way, Western district, Youngstown, Ohio, has been promoted to engineer maintenance of way there, succeeding Lowis M. Swoap who retired January 31 after 43 years of service.

DENVER & RIO GRANDE WESTERN-Arthur F. Boker, track supervisor at Dotsero, Colo., has been promoted to assistant roadmaster at Durango, Colo.

FORT WORTH & DENVER-Jack Hoge has been appointed principal assistant engineer at Fort Worth, Tex., succeeding W. C. Oost who retired recently.

GRAND TRUNK WESTERN-R. G. Maughan, assistant chief engineer at Detroit, Mich., has been promoted to chief engineer there, succeeding C. J. Morris who has been promoted to manager of the London Area of the Canadian National, parent company at the GTW.

MISSOURI PACIFIC-E. W. Kieckers, assistant bridge engineer at St. Louis, Mo., has been promoted to bridge engineer there, succeeding R. E. Peck who has retired after 33 years of service. Mr. Kieckers is succeeded by J. W. Dolson, bridge construction engineer at St. Louis, who is in turn succeeded by J. W. Chambers, assistant division engineer there. W. H. Shideler, assistant division engineer at McGehee, Ark., has been promoted to division engineer at Monroe, La., succeeding W. F. Rambo who retired recently. Mr. Shideler is succeeded by J. E. Stewart, cost engineer at St. Louis.

NEW YORK CENTRAL-P. K. Cruckshank, assistant district engineer at Detroit, Mich., has been transferred to Syracuse, N. Y.

NORFOLK & WESTERN-William B. Hosp, paint supervisor at Roanoke, Va., has been appointed supervisor bridges and buildings there, succeeding George W. Carbaugh who retired recently after 42 years of service.

PITTSBURGH & WEST VIRGINIA-W. K. Kearns, engineer maintenance of way at Pittsburgh, Pa., has been promoted to chief engineer there.

SEABOARD-B. R. Martin, assistant roadmaster at Jacksonville, Fla., has been promoted to roadmaster at Tampa, Fla., succeeding R. A. Drawdy who retired recently after 44 years of service. W. E. Bedinger, division engineer at Atlanta, Ga., retired recently.

SOO LINE-The following appointments have been made to the Soo Line, which was recently created by merging the Minneapolis, St. Paul & Sault Ste. Marie, the Wisconsin Central and the Duluth, South Shore & Atlantic into a single company:

Bertel E. Pearson, chief engineer of the DSS&A, Marquette, Mich., to division engineer there; Gerald A. Nielson, first assistant engineer of the DSS&A, Marquette, to assistant division engineer there; Francis Weingartner to assistant engineer at Marquette and Arthur G. Smith, division engineer of the MStP&SSM at Gladstone, Mich., to assistant division engineer at Superior, Wis.



V. R. Cooledge



W. J. Kernan

SOUTHERN-Ben H. Goodwin, supervisor bridges and buildings at Alexandria, Va., has been promoted to superintendent on the Carolina & Northwestern, a subsidiary of the Southern, at Hickory, N. C. Arthur O. Drumheller, roadmaster on the C&N at Hickory, retired recently after 45 years of service.

TEXAS & PACIFIC - Richard F. McConnell, assistant engineer at Alexandria, La., has been promoted to principal assistant engineer at Dallas, Tex., succeeding Arthur J. Rankin who retired recently after 42 years of service. The following have been promoted to assistant engineers: Carl H. Favre, bridge and building supervisor at Dallas; Delbert E. Crouser, Jr., engineeraccountant and Jumes E. McMillun, draftsman. Michael S. Toops, assistant engineer at Big Spring, Tex., retired recently after 44 years of service.

### Obituary

Albert M. Zabriskie, retired chief engineer of the Jersey Central, died recently at the age of 78.

### Biographical briefs

William J. Kernan, 64, who was recently promoted to assistant engineer maintenance of way on the New York Central at New York (RT&S, Nov., p. 10), was born at Albany, N. Y., and received his higher education at Rensselaer Polytechnic Institute. Mr. Kernan entered the service of the NYC in 1917 as a chainman at Albany, subsequently serving as rodman, draftsman and transitman there. He was promoted to bridge and building inspector at Albany in 1921, assistant supervisor track at Canandaigua, N. Y., in 1931 and assistant division engineer at Jersey Shore, Pa., in 1937. In 1943 he was advanced to assistant district engineer at Boston, Mass. Subsequently he served as division engineer at Albany, assistant engineer maintenance of way at Syracuse, and assistant district engineer there. Mr. Kernan was promoted to district engineer at Syracuse in 1957, the position he held at the time of his recent promotion.

Victor R. Cooledge, 65, who recently retired as engineer of bridges of the Southern Pacific at San Francisco, Calif. (RT&S, Nov., p. 10), was born at De-Smet, S. D., and graduated from Michigan State University in 1917 with a Bachelor of Science degree in civil engineering.

Mr. Cooledge commenced his railroad
career in 1926 as a bridge draftsman and designer at San Francisco. He was promoted to engineer of structural design there in 1942 and assistant engineer of bridges in 1953. Mr. Cooledge was advanced to engineer of bridges at San Francisco three years later.

(More on page 94)

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### STRUCTURES NEWS NOTES

a résumé of current events throughout the railroad world

The Presidential Commission appointed to study the work-rules dispute opened its public hearings on February 6 at Washington. Management's case was outlined in an opening statement by it's chief counsel, Howard Neitzert, and concerned the elimination of firemen on diesels, longer runs, more working time per month, interchange of crews in yard and road service and the elimination of idle standby operating employees when self-propelled equipment is used in track maintenance, repairs and inspection. Labor's proposals, as outlined by Harold C. Heiss, chief counsel for the five "op" brotherhoods, call for a shorter work-day and work-week with the same take-home pay, expenses while away from home, overtime before 12 hr, premium pay for night and holiday work, and paid holidays.

> On February 14 James P. Mitchell, former secretary of labor, submitted his resignation as chairman of the Presidential Commission effective "at once," because of "pressure of other responsibilities."

The Interstate Commerce Commission has ordered a broad investigation into what the railroad brotherhoods have called "murder at grade crossings" - collisions between trains and highway vehicles hauling dangerous cargos. The inquiry is "for the purpose of determining what further safety requirements can or should be made, within the authority of the Commission."

> The long-awaited application for authority to merge into a single system operating nearly 25,000 miles of line in 17 states and the Canadian provinces of Manitoba and British Columbia was filed with the ICC on Feb. 17 by four western railroads. The GN-NP-CB&Q-SP&S application would merge these roads into a Delaware Corporation known as the Great Northern Pacific & Burlington Line with principal offices in St. Paul and Chicago.

Permission to abandon all operations has been asked again of the ICC by the electrified Chicago, North Shore & Milwaukee. Action on a similar petition last May was deferred and the line was told to ask for a fare increase. Despite an increase of 23 per cent granted the CNS&M, wage increases and patronage losses threaten to deplete funds to the point where it soon will be unable to meet its pay rolls.

> The ICC is concerned with the shrinking freight-car fleet. After conceding that 1960 installations might more nearly equal normal retirements, it said "this degree of balance may be short lived unless large orders are placed soon." The ICC also felt that freight car utilization "left much to be desired."

A bill has been reintroduced by Senator Dirksen of Illinois to amend the Norris-La Guardia Act, the National Labor Relations Act and the Railway Labor Act to remove from collective bargaining issues concerning the creation and discontinuance of jobs. The bill seeks to contravene a 1960 decision of the Supreme Court in a case involving abolition of stations on the C&NW.

> In Kansas City truck drivers staged a demonstration to protest rate cuts, permitted by the ICC, on movement of new automobiles by rail, which they claim is cutting into driver employment. About 200 people, including wives and children of truck drivers, marched up and down in front of the federal office building, which houses the local office of the ICC. They carried hand-lettered signs with such messages as "ICC said make way for progress—go hungry!" They also distributed pamphlets. Aim of the demonstration was a congressional investigation of the commission's action.

TION

CTURES



Results of weed control with one application of Du Pont "Karmex". This Reading Company yard in Philadelphia was sprayed in

early spring, and this picture was taken in August. Untreated control-test area at right shows type of growth controlled.

## How Du Pont Weed Killers give long-lasting results...at "least-cost"

Many railroads have found the key to a long-lasting weed control program at "least-cost". Time after time, it is Du Pont "Telvar" monuron or "Karmex" diuron weed killer. In large-scale applications by individual roads and repeated tests by the Association of American Railroads, chemical combinations that include these products continue to outperform other chemicals and chemical combinations used for weed control.

Even so, a good chemical isn't the whole answer. Weed control results can be influenced by many factors since you are dealing with nature under conditions that seldom are twice alike. This means you need the right "prescription" to do the job right.

On all chemicals follow labeling instructions and warnings carefully.



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In some weed control programs, other Du Pont products should be prescribed, too. New Trysben® 200 weed killer is excellent against bindweed and other tough perennials. Dybar® fenuron weed and brush killer (handy to apply because it comes in pellets) may be what's needed for brush. And for areas near land that's planted to sensitive crops, Ammate® X weed and brush killer is ideal for brush control because it is non-volatile.

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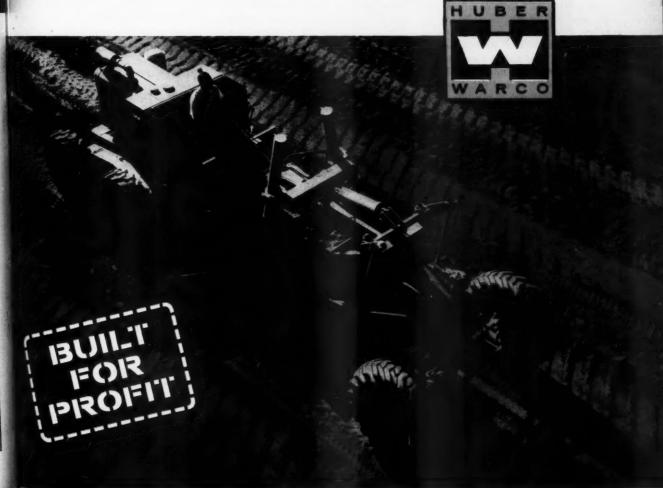
## Hydraulic power makes it easy



nd

Ease of operation, positive control, convenience - for years these and other operator suggestions have been a major factor in the design of Huber-Warco motor graders. A prime example is Huber-Warco's complete Hydraulic Control System. It eliminates fatigue, gives the operator instant positive power, allows him to operate two or more controls (all within easy reach) at once. Hydraulic power means no shoving or tugging at controls, no fear of levers kicking out of position since any cylinder can be locked in any desired position. Finer control of both heavy and the finest finish grading is assured. Best of all, Hydraulic Control develops the skill and confidence so necessary for big production. See the Hydraulic Controls as well as the other outstanding features you get in Huber-Warco motor graders and check Huber-Warco's full line of 3-wheel and tandem rollers, and maintainers at your Huber-Warco distributors soon.

HUBER-WARCO COMPANY . MARION, OHIO, U.S.A.



## Extra savings now possible through rent or purchase of M/W equipment

Available only on a contract basis to date, Mannix "Auto-Track" M/W Equipment can now be rented or purchased outright. Use of RR crews plus extra flexibility of timing work cuts costs.

• Mannix International, Inc., pioneers in right of way maintenance equipment, has announced a revolutionary new policy which will enable railroads to purchase or rent Mannix equipment. Traditionally, such equipment has been available only on a contract basis, in order to assure its complete development and perfection.

According to Mannix officials, the new policy will result in substantial savings through the complete flexibility it affords in use of railroad personnel and their more effective scheduling.

The Auto-Track unit, first introduced by Mannix in 1959, is a versatile, many-purpose machine, the result of ten years of extensive testing and experimentation. Objective of the Mannix engineers was to develop a machine that would eliminate the tedious, expensive hand methods of cribbing out, jacking up the tracks, and placing new material under the track. The Auto-Track

#### Saves As Much As 50%

is the result.

In use, the Auto-Track has greatly increased production capabilities and at the same time materially reduced costs. Railroads using the Auto-Track have saved as much as 50% over previous methods, while averaging a better than 30% saving.

Although the Auto-Track is an entirely new concept in maintenance of way equipment, Mannix is no

new-comer to the railroad industry; starting a long association in 1905 when founder Fred Mannix contracted for a railroad grading job, moving his horse and scraper outfit from a dirt road assignment.

Since that first railroad contract in Edmonton, Canada, grade, bridges, structures, laying of track, production of ballast—all phases of maintenance and rehabilitation—have been an integral part of Mannix's experience. From 1936-38, Mannix even built, completely, a new line in Northern Quebec. And in 1950-52, Mannix was one of the group of contractors responsible for building a new road for the Quebec, Nova Scotia and Labrador RR.

So when Mannix engineers started their search for an ideal machine for re-ballasting and re-surfacing, they had the comprehensive background necessary to give them a grasp of the special needs and problems of the railroads.

By July 1952, a successful Plow and Sled had been developed; the Sled to remove old crib material and place it under the ties; the Plow to remove old material from under the ties.

#### Used by 33 Railroads

Since 1955, the Mannix Plow, Mannix Sled, and Mannix Auto-Track have been received so enthusiastically that over 6,000 miles of track on 33 railroads in North America have been rehabilitated with their help.

The Auto-Track will plow, remove ties, sled ballast, and align a mile of track a day. In use on leading railroads throughout North America, the Auto-Track has demonstrated its efficiency and economy for track maintenance and rehabilitation programs under the contract arrangement. Now, with the newly-announced purchase or rental arrangements, even greater savings are possible.

The tremendously effective Auto-Track and Plow leaves the track completely and cleanly skeletonized after passage. Old ties have been removed. Fouled ballast is spread out along the shoulder. Ties rest on the hard, smooth surface of the sub-ballast, which remains undisturbed. After the new ballast is unloaded, the Auto-Track positions the Sled to spread the ballast to the required raise. All this with a minimum of personnel.

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#### Self-Propelled Too

The Mannix Auto-Track is self-propelled to move itself to and from the work area. In operation it is pulled by a locomotive. It drops two legs on each side of the track, then jacks the track up. A boom hooks onto the Sled or Plow, pulls it into position under the track.

Plowing and removing ties is done at the head end. Worn ties are knocked loose by two hydraulic hammers, ejected automatically by

an ejector.
At the re-

At the rear of the Auto-Track is an aligner unit with hydraulic lining heads that correct any misalignment. When plowing or sledding, the alignment can be held accurately to plus or minus one inch.

After plowing, the new ballast is unloaded and the Auto-Track positions the Sled to spread the ballast to a predetermined depth.

The use of the efficient Mannix Auto-Track, Undertrack Plow and/ or Ballast Sled makes it easy for a small crew to recondition an average of a mile of track a day.



## NOW...Cut M/W costs to the bone by Lease or Purchase of MANNIX "Auto-Track" Equipment

MANNIX Auto-Track equipment will handle your maintenance work efficiently and economically. With your choice of lease or purchase, you can select the arrangement most effective and most advantageous to you. Either way, Mannix Auto-Track will rehabilitate more miles of track faster, with fewer men. It is so simple and reliable that any crew can be easily trained to operate it.

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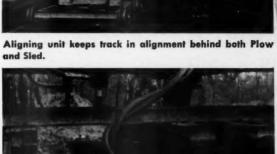
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TURES



Only one man and the Auto-Track operator are needed to position the Plow or Sled under the track or take it out.



Worn ties are knocked off by hydraulic hammers, ejected by a fast moving conveyor, automatically.

Over 6000 miles of track rehabilitated on 33 railroads has proved that the Mannix Method saves money and time.

For full details on how the Mannix service and the Mannix rental or purchase plan can save you money, or to arrange for a showing of operating films, write or call today! No obligation.

See the Operating Films showing continuously in Booth 852, NRAA Exhibition, March 6-7-8-9.



Box 7485, Minneapolis 22, Minnesota Liberty 5-0411



























## Let AJAX WATER SERVICE Help Keep Your Maintenance Budget in Line

It can . . . by reducing absenteeism . . . saving time . . . promoting safety . . . improving morale

Make-shift arrangements are rarely economical. There's no economy in the "pail and dipper" combination. Why not look into the advantages of the portable AJAX Refreshing Drinking Water Service. You'll be surprised at its low cost. You'll be pleased at how much it can help keep your maintenance costs down.

The AJAX Refreshing Drinking Water Service can go anywhere your men go—and helps your budget. It reduces absenteeism because personal service AJAX Cups effectively reduce the spread of colds and other diseases. It encourages the water consumption needed for good health. Reduces fatigue. Increases worker efficiency. Saves time by eliminating long walks. A refreshing drink from a comfortable-to-use AJAX Cup goes far toward building morale. Imprinted, AJAX Cups promote safety. And they solve the "dipper problem" forever.

Find out how AJAX Water Service can help keep your maintenance budget in line. For detailed information, write today.



Reports from one large road indicate that it enjoyed worthwhile savings in its maintenance budget after it adopted the complete AJAX Water Service. One big advantage is the fact that the standard installation fits right onto the track maintainer itself. Always ready; always at hand.

The AJAX Water Cooler is a neavy duty. 5-gallon unit. It is easy to sterilize and keep clean. Well insulated to keep water cool. The AJAX Cup Dispenser can be mounted on the cooler or attached separately to the track maintainer. It holds 300 AJAX cups in the 4- or 6-ox. size. AJAX is the cup that dispense open, ready to use. Available plain or imprinted with safety messages. If you are looking for a way to increase worker efficiency and still keep your budget in line, look into AJAX.



WORCESTER 5, MASS. • DALLAS 20, TEX.
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## THE IMPROVED\* GAUTIER

THE FINEST RAIL ANCHOR ON THE MARKET FOR DRIVE-ON OR MACHINE APPLICATION

"IT CAN'T BE OVERDRIVEN

See us at Booth 634, March 6-9, at the NRRA Convention, McCormick Place, Chicago, III.

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General Offices: 38 S. Dearborn St., Chicago 3, III. • Manufacturing Plant: Chicago Heights, III. • Distributors: North American Supply Co., Cleveland, Ohio; William Allen, Denver, Colo.; John O'Brien, St. Paul Minn.; W. T. Richards, San Francisco, Calif.; G. C. Hunt & Co., Atlanta, Ga.

RAILWAY TRACK and STRUCTURES

CTURES

MARCH, 1961

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## Factors that affect prices of M/W machines

#### **Ballast standards**

The increased amount of out-offace surfacing which railroads are doing points up the need for good ballast. Surfacing cycles can be maintained and even extended when durable ballast is used.

Experience has shown that slag and crushed, hard stone hold up better under traffic than do other ballast materials. Although some roads, have been using slag and crushed stone for decades, the majority use inferior ballast materials, such as crushed soft limestone, prepared and pit-run gravel, and chat.

Those roads which adopted the inferior ballast materials as standard for certain lines, had valid reasons for doing so. Economy no doubt was the prevailing factor. If the sources of supply of such materials were readily available on their own lines, it was logical that the output of these sources should be used. The density of traffic, wheel loads and train speeds certainly were also economic considerations. For the most part, the standards of the inferior ballast materials were adopted many years ago.

Some roads have since taken a hard look at their ballast standards. The GN did and, beginning in 1947, launched an extensive program of replacing the existing ballast with a good grade of crushed stone. Today, about 95 per cent of its main track has been reballasted. The C&NW and the B&M likewise are converting their main tracks to rock ballast.

In general, the labor of applying ballast and raising track costs more than the rock ballast, even though it must be obtained off line. If surfacing cycles can be lengthened and spot work between surfacing reduced through the use of durable ballast, it would appear that some roads would be benefited by taking a second look at the economics of changing their ballast standards.

Occasionally a maintenance officer will be heard to complain about the prices charged for their products by manufacturers of maintenance-of-way machines. This magazine does not purport to be an authority on pricing practices. It is not prepared to express an opinion regarding whether these complaints have any foundation in fact. But it would like to point out some factors that it feels should be taken into consideration by those who are inclined to be critical of machinery prices.

Take the matter of development costs. The introduction of any new machine is preceded by a period during which the manufacturer must spend a considerable sum of money in developing a pilot model. The pilot model then goes into a "shakedown" phase to determine if it is workable and whether there are "bugs" that have to be corrected-which means more expense.

Recently a representative of this magazine had the opportunity of observing part of the test proceedings involving a track device that has since been introduced to the trade. The manufacturer had conceived the need for a device to perform a certain track-maintenance operation. After several months of development work, during which various ideas had been tried out and discarded as impractical, a pilot model was developed that appeared capable of doing the job satisfactorily.

It was this model that was being tested when this magazine's representative was present. On hand to operate the device were four of the company's service men. Two of the company's engineers were also present to observe its performance. The cost of their wages and expenses-and all earlier development costs-could be retrieved by the manufacturer only in the form of revenues derived from the sale of the device to the railroads.

How much does a manufacturer have to include in the price of a product to recompense him for the cost of developing it? It would seem the answer would depend in part on the number of units which he might reasonably expect to sell. A manufacturer of automobiles, with a sales potential of, say, a million units, can spend vast sums on development work and add the cost to his sales price without having much effect on the price of the individual unit. When a manufacturer of maintenance-of-way machines, on the other hand, spreads his development costs over the relatively small number of units he may reasonably expect to sell, the price may seem disproportionately large considering the size or complexity of the unit.

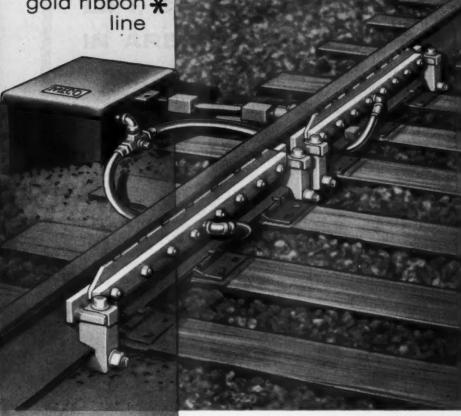
Another factor that has a bearing on the subject under discussion is obsolescence. Anyone familiar with developments in the M/W machinery field today cannot help but be aware of the fact that obsolescence is taking place at an unprecedented rate. Only a cursory examination of some of the machines at the NRAA exhibit is needed to confirm this statement.

It is apparent that manufacturers of M/W equipment, in establishing prices for their products, would find themselves wallowing in red ink if they failed to give consideration to the factors mentioned here.

SPECIFY

## NECO new model MC rail and flange

gold ribbon \*



the MECO gold ribbon line includes:

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COST-CUTTING POWER RAIL LAYER

> HIGH-SPEED BRUSHCUTTER

MACK, REVERSIBLE **SWITCH POINT PROTECTOR** 







### gives dependable care-free lubrication everywhere it's needed, automatically

In modern railroading everywhere includes; grades, switch points, guard rails and running rails, as well as curves -Everywhere that friction-forces are at work, new "advanced design" MECO lubricators will reduce friction to a whisper. Quadruples the life of rails and wheel flanges!

MECO lubricators cost less to install—Attach to standard rail without special preparation. Once installed, a wheelactivated mechanism dispenses just the right amount of grease through the even-flow distributing bars directly to the rail and wheel flange for waste-free, care-free lubrication, automatically.

Ask one of our men to give you the extra-profit facts on the "gold-ribbon" MECO lubricator. Or write direct for full information.

a standard of quality, value, performance and service

RAILWAY EXCHANGE BLDG., CHICAGO . DIVISION OF POOR & COMPANY



All-wheel steering permits exceptional maneuverability

Continuous full circle boom rotation allows work over front, sides or rear

Telescoping hydraulic booms extend up to 48 ft.

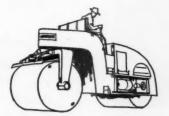
## LIFT, CARRY AND PLACE IN AREAS WHERE OTHER CRANES CANNOT WORK

Tight, cramped working quarters and low overhead clearances pose no problem for Austin-Western hydraulic cranes. Because they've got the easy maneuverability of all-wheel steering plus long reach and big load capacity. Telescoping booms swing in continuous full circle on most models; extend to maximum 48-ft. length on Model 410. Safe, precise, easy to operate. Rubber-mounted, they work indoors or out equally well—most travel at speeds to 35 mph. A-W owners tell us they're perhaps the most useful multi-purpose pieces of equipment you can buy. They do just about everything . : from plant maintenance or construction equipment repair to materials handling tasks. And they can be even more useful equipped with clamshell, dozer blade, snow plow, magnet, personnel platform, or other attachments. They come in 5 models—capacity ranges up to 11 tons; self-propelled, truck or stationary mountings. Learn just how profitable an A-W would be in your operation. Get facts from our distributor or write us direct.



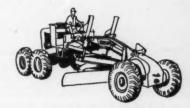
#### A-W MOTOR SWEEPERS

2 models: 2-yd. Model 40; 4-plus yd. Model 60. Safe, easy front steer; full visibility. Simplified design; broom and hopper in rear.



#### A-W COMPACTION EQUIPMENT

Variable weight tandem and 3-wheel rollers to 14 tons; 3½-6 ton portable tandem; Roller-Compactor; vibratory attachment for most 3-wheel rollers.



#### A-W POWER GRADERS

9 models; all-wheel drive and steer 4wheel Pacers and 6-wheel Supers. Weight classifications to 30,000 lb., power ranges to 165 hp

Austin-Western CONSTRUCTION EQUIPMENT DIVISION, AURORA, ILL.
BALDWIN · LIMA · HAMILTON



URES

KERSHAW BALLAST REGULATOR (Heavy Duty) — Performs 14 distinct operations including track patroling, regulating and shaping shoulder ballast, and distributing ballast ahead of work gangs. Some five improvements over previous models.



KERSHAW SUPER JACK-ALL — A combination hydraulic jacktamper designed for high production track raises. This machine is equipped with an automatic leveling device.



KERSHAW TRACK BROOM — Used to remove waste material from track in yards, and also to remove excess ballast from center of track during surfacing operations.



KERSHAW TWO-WHEEL KRIBBER — In skeletonizing, removes ballast from center of tracks between the ties. Also skeletonizes outside rails,

## KERSHAV

A Complete LINE

Now

And NOW . . . Three Kershaw machines to be unveiled this month and presented for your inspection at the Exhibit in Chicago. Don't miss them! These new machines fit perfectly into the Kershaw line of equipment, a line that has won wide acceptance on the world's railroads. Several hundred thousand dollars have been spent developing and testing these machines during the past several years. They are designed and developed to fit into ANY track reconditioning package. More than 500 Kershaw Ballast Regulators have been put in service on railroads in this country and abroad. Nearly 400 Kershaw Kribbers have been put in service, nearly 100 Track Brooms, nearly 100 Jackalls, and hundreds of other machines.

For YOUR railroad track maintenance program, now, more than ever, look to Kershaw for leadership. Kershaw . . . Trackwork Equipment Designed, Developed and Proven on the World's Railroads.



KERSHAW BRUSH-TYPE KRIBBER — This self-propelled machine is used for cribbing and brushing ahead of adzers in smaller rail-relaying gangs.

## Presents

RACKWORK EQUIPMENT

HREE NEW MACHINES



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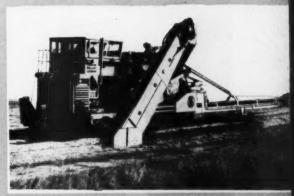
ERSHAW MANUFACTURING CO. INC.



KERSHAW TRACK CRANE — Self-propelled and equipped with tie-inserter, the Track Crane is used to redistribute, position and insert new ties, and also is used in bridge work.



KERSHAW UNDERCUTTER AND SKELETONIZER - Used in skeletonizing and undercutting operations to remove foul ballast and to lower track.



KERSHAW BALLAST CLEANER - For removing old ballast from track, cleaning it and returning to track. This machine will double production of previous models.



KERSHAW CRIB-ADZE — Used in high-production rail relaying gangs to crib between ties, automatically adze ties and apply preservant in one operation. Warks off either rail in either direction.



KERSHAW TIE-BED SCARIFIER WITH INSERTER ATTACHMENT

— Used to scarify old, cemented tie beds and to insert new
ties. Machine is equipped with attachment for cleaning cribs.



RAIL LOCK SPIKE

### TIE PLATE LOCK SPIKE



## BERNUTH, LEMBCKE CO., INC.

420 Lexington Avenue New York 17, N. Y.



On the new 703-foot Salkehatchie River trestle...

## Atlantic Coast Line saved \$69,000 with slabs and piles of prestressed concrete

Atlantic Coast Line trains cross the Salkehatchie River near Yemassee, S. C., at unrestricted speeds on one of the first major prestressed concrete slab railroad trestles in the United States. It replaces a short steel span and a crossoted timber trestle.

The \$69,000 estimated savings in initial cost comes with mass production methods in prestressing that save labor. Construction is easier with prestressed concrete. Piles withstand real driving punishment.

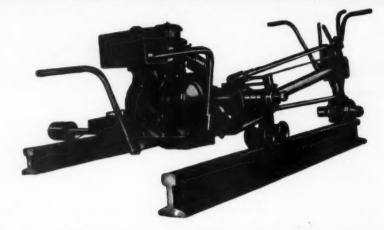
And prestressed concrete means less weight for the same load-carrying capacity, hence greater ease of bridge erection.

Low upkeep costs bring more savings. Concrete needs no painting to prevent rust. Prestressed concrete is setting a new pattern for trestles—for the Atlantic Coast Line and for other railroads across the country. Free technical literature on request. (U. S. and Canada only.)

PORTLAND CEMENT ASSOCIATION Dept. A3-27, 33 West Grand Avenue, Chicago 10, Illinois

A national organization to improve and extend the uses of concrete

CTURES



The RACO Model "C" Track Wrench



MODEL "C" shown on the new RTM #750 Power Track Wrench Traverse Carrier



RAILROAD ACCESSORIES CORP.



Main Office and Plant Tenakill Park, Cresskill, N. J.

## SPEED SHING

### MODEL 442

- Mechanizes road crossing repairs.
- Virtually eliminates hand labor.
- Doubles production.
- This is accomplished with 2 quick change hydraulically operated clamshell buckets.
- 8" wide, cribbing bucket removes material between ties and from under rails.
- 18" wide, % cu. yd. digging bucket.
- 42" wide snap on lips increases capacity to 34 cu. yd.

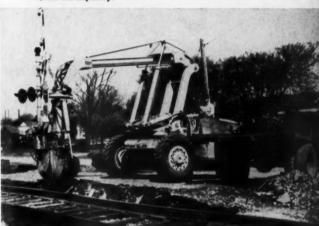






180° boom swing.
360° hydraulic swivel for full control of bucket positioning.
7½' forward and backward boom movement.
85 cu. ft. Gyro-Flo Ingersoll Rand compressor with machine engine power take off. (Optional)
Specially designed rear axle leaf spring suspension permits full axle oscillation when crossing rails.
Power shift transmission—torque convertor—4-wheel drive, planetary axles—4-wheel power steer—4-wheel power brakes.

G.M.C. 3-71 Diesel engine. 7,000 lb. capacity.





PETTIBONE MULLIKEN CORPORATION



80 Years of Service to the Railroad Industry



Here at Salt Lick Curve, Terra Alta, W. Va., track curves at 9 deg 45 min on a gradient of 2.8

## Baltimore & Ohio lays 1,200 tons of Bethlehem fully heat-treated rail

### B&O management impressed by outstanding success on other roads

In a move to improve right of way and shave costs too, the Baltimore & Ohio in 1960 installed 1,200 tons of Bethlehem fully heattreated rails along its Cumberland Division, Sub-Divisions 4 and 5. Treated section 140 RE rails were laid on the high and low sides of 25 curves between 7 deg and 11 deg, 18 of them 9 deg or over.

B&O had become increasingly impressed by the performance of Bethlehem heat-treated rails on many other railroads. Long-time tests on these roads have proved their superiority. B&O, too, is now enjoying the resistance to tough service that is built into these fully heattreated rails, made at our Steelton, Pa., plant.

Tests across the nation have clearly shown that heat-treated rails last two, three, four times longer than standard control-cooled rails; one major passenger carrier reported that it expects seven times greater longevity on one particular installation.

Our engineers have accumulated considerable data on heat-treated rails, and they will gladly go over this impressive material with you. They will also help you select suitable locations on your lines if you desire to make your own tests. Just ask our nearest district office, or write direct to our headquarters.







Tonnage traffic on this 9 deg 1.5 min curve at Bloomington, Md. (mile-post 208) is predominantly eastbound. Heat-treated rails were recently installed here on eastbound track.

for Strength

... Economy

... Versatility

As many as 6 and 8 diesel units are needed on this stiff, curving grade. Here you see 4 helper units pushing the train shown in top photo. Heat-treated rails are expected to substantially reduce wear on high-side and crushing on low-side rails.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

BETHLEHEM STEEL



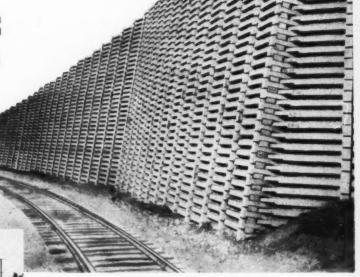
## 3 WAYS TO SAVE...

with

## PRECAST CONCRETE PRODUCTS

#### CRIBBING

Concrete crib walls, because of their economy and adaptability, are the permanent answer to most retaining wall problems. Architecturally pleasing too.



## PRESTRESSED RAILROAD BRIDGES

Precast maintenance-free Amdek bridge beams are made under factory controlled conditions, delivered on schedule, erected quickly with minimum traffic tie-up.



### CULVERT PIPE

Concrete culvert pipe is permanent. Available in the shape, size and strength required. Has superior hydraulic properties.





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CONCRETE PRODUCTS DIVISION

GENERAL OFFICES:

101 EAST ONTARIO STREET, CHICAGO 11, ILLINOIS, PHONE: WHITEHALL 4-5600

## **RAJO**

## PRECISION FIT

## **FIBRE**



Our endeavors along this line, have recently led us to offer a new method of supplying renewal parts — "PACK-AGED FIBRE SETS". Under this method a complete set of fibre parts necessary to change-out a given joint is packaged in an individual sturdy carton. The advantages of thus ordering are many, — it eliminates the possibility of human error, — it increases efficiency by simplifying your storage and selection problems, — and most important it guarantees that field crews will receive the exact quantity and part detail necessary to perform their work at the point of installation.

RAIL JOINT COMPANY
DIVISION OF POOR & COMPANY INC.

50 CHURCH ST NEW YORK 7. N. Y.



CP-612-RLP heavy-duty impact Wrench frees rusted nuts . . . runs the biggest ones to recommended tightness. 52 models take the work out of nut turning.

## LABOR-SAVING CP AIR-TOOLS KEEP CONSTRUCTION AND MAINTENANCE COSTS

CP Air-Tools are helping the nation's rail-roads meet and beat tough work schedules on track and structures. Their high-powered, money-saving performances prove cost-cutters on hundreds of erection and maintenance jobs.

CP equipment is maintaining its 60 year reputation for keeping railroading "on the move."

Visit us at Booth 357, National Railway Appliance Association Show, March 6-9. You'll find a wide assortment of CP Air Tools just built for your toughest jobs you'll find a hearty welcome.



Chicago Pneumatic 8 East 441h St., New York 17, N. Y.

SPEED RECORDERS • INDICATORS • STATIONARY AND PORTABLE COMPRESSORS • PNEUMATIC AND ELECTRIC TOOLS • HYDRAULIC RIVETERS





## Dow helps you save half the cost of vegetation control

Cut the high cost of controlling vegetation along right-ofways with Dow chemical weed and brush killers. Dow will help you plan a vegetation control program tailored to your needs which will keep signals and switches, ballast and berm continually free from grass, weeds and brush.

With planned chemical weed control many firms save over half the expense of hit-or-miss manual methods. Compared to the time and labor involved in hand-cutting and mowing which offer at best only temporary control, a chemical program actually decreases in cost year by year, while its application becomes easier.

Dow tailor-makes chemicals for every vegetation problem. Ballast and berm: Low-cost Radapon® kills grasses, tops and roots; Kuron® or 2-4 Dow® Weed Killer, Formula 40® controls broad-leaf weeds. For longer residual control, these products may be used in combination with soil-sterilant type products.

General Weed Control: Kuron, 2-4 Dow Weed Killer, Formula 40, Esteron Ten-Ten®.

Brush Control: Veon® 245, Esteron® 245 O.S., Kuron.

Signals, switches, yards and bridges: Baron® or Garlon® for both broad-leaf weeds and grasses.

Dow provides both chemicals and planning to help you control vegetation most economically. For full information on this service, write THE DOW CHEMICAL COMPANY, Agricultural Chemicals Sales Dept., Abbott Road Building, Midland, Michigan.



Cost of <u>manual</u> vegetation control stays high year after year Cost of <u>chemical</u> control decreases each year

THE DOW CHEMICAL COMPANY



Midland, Michigan

RAILWAY TRACK and STRUCTURES

MARCH, 1961

35

# BALANCED BRAKING

Racor mechanical car retarders clasp each wheel individually for consistent braking regardless of wheel mounting variations

Consistent braking, dependable braking—that's the kind of braking you get every time with Racor mechanical car retarders. You get the same braking car after car because of Racor's exclusive balanced braking principle. Here's what this means:

First, each wheel is <u>clasped on both sides</u>. There's no force tending to press it off the axle, no force to crowd the flange against the running rail. The rugged Racor unit "floats" from side to side, gripping the wheel with the same pressure on the front and back.

Second, each wheel of a pair is clasped <u>independently of its mate</u>. Variations in wheel back-to-back distances have no effect on the Racor retarder's operation.

Third, less flange pressure. Improper adjustment of the Racor retarder cannot cause unusually heavy pressures against flange of wheel.

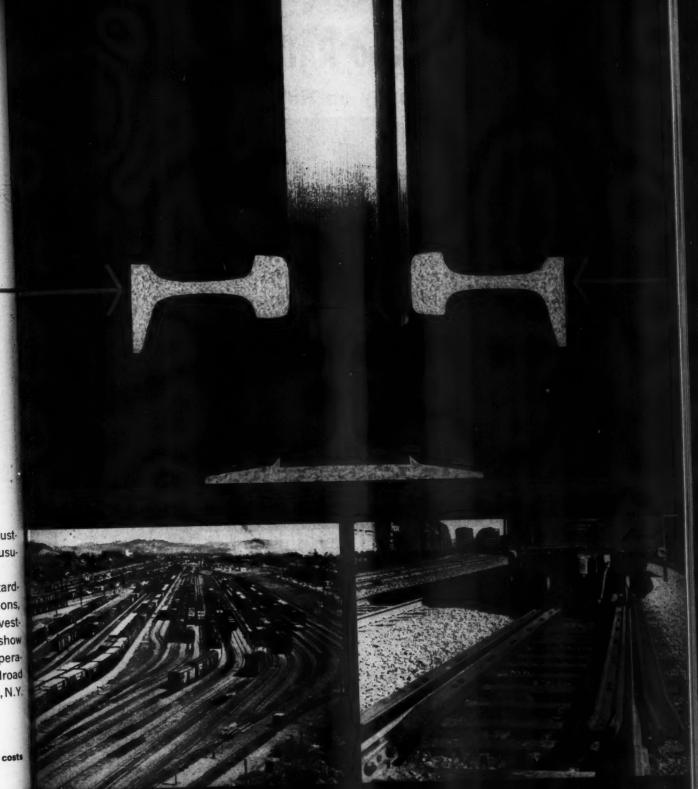
In yard after yard, Racor mechanical car retarders are eliminating skates, speeding operations, and returning as much as 40% on their investment. Ask your Brake Shoe representative to show you how they can help improve your yard operations. American Brake Shoe Company, Railroad Products Division, 530 Fifth Ave., New York 36, N.Y.

In Canada: Dominion Brake Shoe Company, Ltd.



Quality products cut your ton-mile costs

A-1901



Sixteen tracks of this yard employ Racor mechanical car retarders. Note that locations of retarders are staggered, so that the full length of each track can be used. The Racor retarder clasps each wheel with the same pressure from both sides. This balanced braking gives consistent operation regardless of variations in wheel back-to-back distance. There is no excessive flange pressure or tendency to force the wheels apart on the axle.

# Elliott and RAILROAD CARRIER

Saves Time, Money on Railroad Maintenance



## Major Railroads approve ELLIOTT **Units for Maintenance Modernization**

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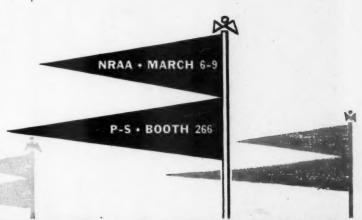
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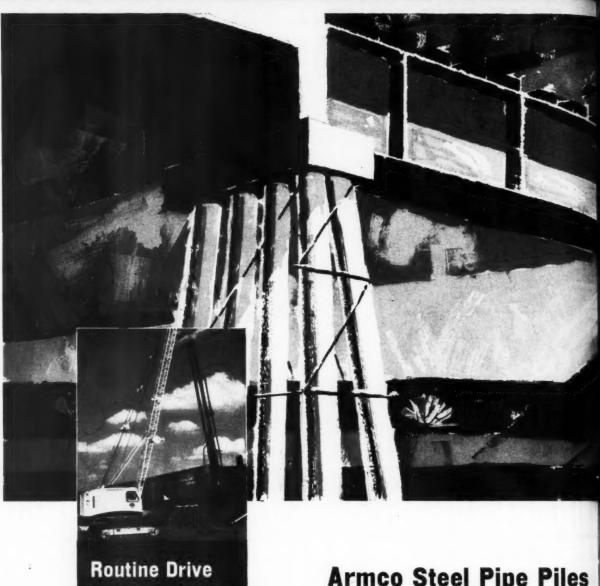
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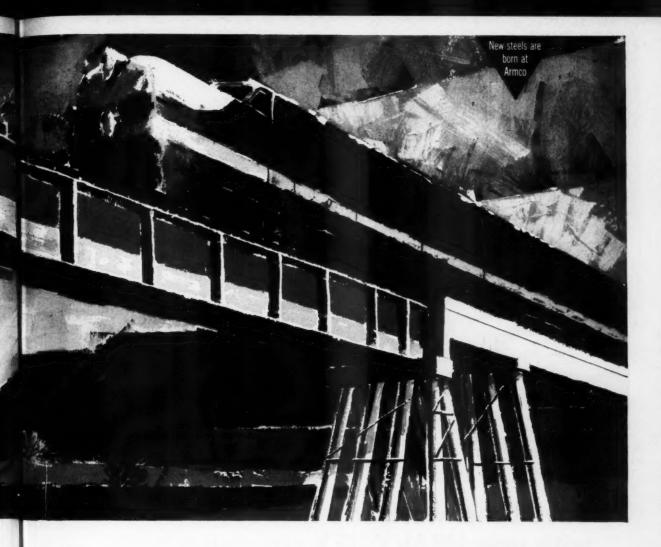
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RAILWAY TRACK and STRUCTURES

MARCH, 1961

41

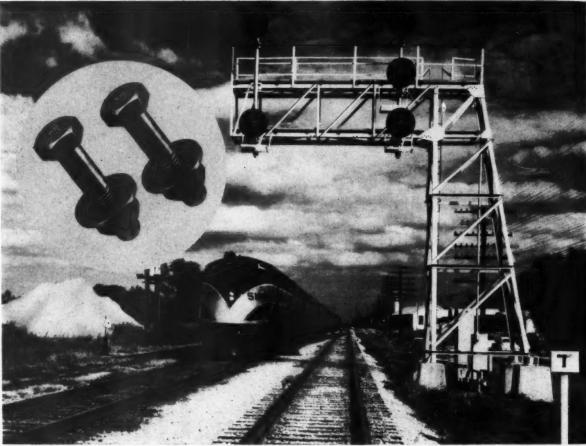


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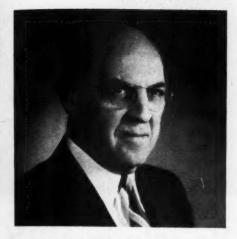


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#### STRUCTURES



What railroads need today . . .

## • Enterprise

- Imagination
  - Faith in future

A guest editorial by
E. J. BROWN
President, AREA

Other AREA officers



R. H. Booder Senior vice president



C. J. Code Junior vice president



Neal D. Howard Executive secretary

The railroads are faced today with a number of different needs.

Obviously they need more business. Obviously also they are in desperate need of relief from discriminatory regulation, from excessive taxation, from the cost burden imposed by featherbedding and from the handicap of competing with subsidized transportation.

We in the railroad business hear about these needs almost every day. In fact we have allowed our thinking to become so preoccupied with them that we are inclined to forget or overlook a whole group of needs of an entirely different kind. The needs I am talking about now are different because they arise from shortcomings in our own thinking. We might call them "internal" needs to differentiate them from those that are produced by outside circumstances.

Let's look at some of the more important of these internal needs. One is enterprise. We are proud of the fact that we live under the private enterprise system. Yet I sometimes wonder if some of us fail to realize that living under such a system carries with it the responsibility of actually practicing private enterprise in our daily thinking.

I am talking now about the kind of enterprise that was shown in 1934 by the Burlington when it placed in service the first dieseldrawn streamlined passenger train, the Pioneer Zephyr. By this action, taken during the depths of the depression, the curtain was raised on a

whole new era in railroading - the age of dieselization.

Another important internal need in the railroad field today is imagination. As applied to railroading generally this is the faculty of conceiving new ways in which to serve the transportation needs of the country. The practice of hauling highway trailers on flat cars is an example of what can be accomplished through imagination.

Now I don't mean to imply that each of us is expected to come up with ideas for revolutionizing the railroad industry, but if we will search for them we will find plenty of opportunities for the use of imagination right in our own jobs.

A third internal need today is faith in the future of the railroad industry. No one seriously questions the fact that railroads are the most efficient form of transportation ever devised. At present the full capabilities of the railroads are not being utilized. However, there is plenty of evidence to indicate that the chains holding them back are, one by one, being loosened or removed, leading to the hope that eventually they will achieve a breakthrough in their efforts to claim a fair share of the nation's traffic.

In the light of this viewpoint should not the negative attitude that is so widely prevalent on the railroads today be replaced with one of faith in the future of the industry? Who can doubt that such faith, backed by enterprise and imagination, will assure that future?

## Who took part in the conference

#### Chicago & North Western

- M. S. Reid, assistant chief engineer — maintenance
- R. W. Bailey, engineer scales and work equipment
- T. M. Evans, communications engineer
- N. V. Butkovich, electronics engineer

#### Railway Track and Structures

R. E. Dove, associate editor



# Electronics: Its role in M/W

The uses of electronics have grown rapidly in the missile and space fields and in industry generally. Questions are now being asked regarding its applications in the M/W field, especially as an aid to automation. With the objective of obtaining answers to some of these questions this magazine, with the cooperation of the Chicago & North Western, sponsored a unique "brainstorming" staff conference.

To assure that the discussion would include both the practical and the theoretical viewpoints, officers of the road representing the maintenance, work equipment and electronics fields were included.

**Dove:** Mr. Butkovich, just what is electronics and how does it act?

Butkovich: Electronics comprehends devices or systems using electronic devices such as tubes, transistors and diodes. Electronic devices either initiate, amplify, store, or transmit signals, such as sound or radio waves.

**Evans:** Basically, electronics permits the use of small increments of electrical energy for the transmission, display or storage of intelligence, whether it is voice impulses, as over a telephone or radio, or transducer information used in telemetering and remote control, or data.

**Dove:** Are light, high-frequency waves, pressure, vacuum, heat, sound, vibration, etc., part of electronics or are those the means by which electronics is employed to effect whatever operation you desire?

**Butkovich:** Any of those can be used to operate an electronic device through various transducers.

**Dove:** Can oscilloscopes convert sound into light?

Butkovich: Yes, they provide visual indications of any phenomenon which can be converted into electrical energy by transducers. An oscilloscope follows electrical currents that are too fast to record with a meter or recording pens. Because the electron beam has no weight, it can be moved as fast as the electric field is moving. Meters and recording pens have mass which limits the speed of their movement. Light has, you might say, no mass, and it can move rapidly.

**Dove:** Is there any way to use that? Is that the final result or can it be used to control operations?

Evans: An oscilloscope is primarily

a display mechanism, similar to a meter, or a counter.

**Dove:** Then that would benefit the operator only, wouldn't it?

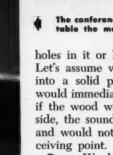
**Evans:** Yes, but you could photograph it, although there are more refined ways for making permanent records.

**Dove:** Mr. Reid, what are some of the items of maintenance of way operations that lend themselves to automation?

Reid: Track surfacing is one item that does lend itself to automation, as well as to the use of electronic devices in connection with machines. Most railroads have already taken the bulk of the manpower out of track surfacing and must now look to combining the operations of more than one machine, either by electronic methods or some other device.

Some of the machines we are now using could possibly be operated by remote control. Where we now use a small mechanized gang equipped with a power tamping jack, power tamper, power liner and regulator, I don't believe we are out of line in considering that we should be able to run all of these machines with one or two operators. A control panel could be placed on one of the machines whereby one man would operate all four of the machines mentioned.

We are presently making rail inspections with an electronic-induc-



# automation

tion device. However, we do think that considerable improvements in testing should be made. For example, the joint-testing equipment could be more accurate, as it does not now find all the defects in the joint area. The rail-testing equipment could be improved to detect internal defects in the vicinity of engine wheel burns.

We think that some additional improvements could be made for pile-driving equipment, such as automatic controls for diesel hammers, that would stop the driving when the resistance reaches a certain point.

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A track-analyzing machine might be adapted to record all conditions of surface, alinement, gage, etc., on a tape or similar device. This same information could then be furnished to a set of surfacing equipment to control its operation. The tape would cause the surface or lining equipment to stop and make corrections as recorded.

Perhaps we should also consider a device to be added to the trackanalyzing machine that would be able to spot poor ties.

Butkovich: A sensing device using the principles of either sonics or radioactive testing might be developed that would automatically inspect ties and record the data.

Dove: How could you do this?

Butkovich: You all know how acoustic tile works. It either has The conference was held in Mr. Reid's office at Chicago. Reading clockwise around table the men are: Butkovich (back to camera), Evans, Dove, Bailey and Reid.

holes in it or has a rough surface. Let's assume we sent sound waves into a solid piece of wood. They would immediately be reflected. But if the wood was hollow or soft inside, the sound would be absorbed and would not reappear at the re-

Dove: Would this be a separate machine?

Butkovich: Not necessarily. This device could be added to rail-detection sensing equipment or a trackanalyzing machine and the tie conditions, as well as the surface and line of the track and rail condition, could all be recorded on one magnetic tape or other electronic recording device.

Reid: Could you reproduce the information recorded on the magnetic tape on a graph for visual

inspection?

Butkovich: Yes, let's just assume we have a four-channel coded tape which would record with four pens. One pen would indicate the gage of the track, another would indicate bad ties, another would indicate poor line and the fourth would indicate the track-surface conditions. When the tape is placed into the play-back, each one of its channels would repeat the information to one of the four pens and duplicate same on a graph. As it was rerun, we would see a pip for every bad tie and variation in line and surface. This would provide a permanent record of the conditions found.

Evans: If you wanted immediate information on track conditions, it could even be transmitted over the telephone directly to your office.

Dove: How would you do this? Evans: The recording might be done with tones so that each channel of information was represented by a separate tone. These tones would be in the voice frequency range so they could be transmitted over any telephone circuit by means of a tape play-back. A standard tape recorder installation in your office would receive the information.

Reid: Our problem today is not in finding poor ties that need to be removed or track surface that needs to be corrected. Our biggest problem is in getting the ties replaced and the surface and line of the track actually corrected. In view of this,

I think our first move is to develop the machines to the nth degree for the corrective phase of maintenance.

Evans: We should then concentrate on improving the sensing devices and automatic features on existing machinery so as to require less control by the operator.

Reid: Yes, we know that a machine operating automatically produces more uniformly tamped track and increases production. We are not leaving it to individuals. There is considerable difference in the efficiency and quality of the work of operators.

Evans: I think there is more to be done in improving semi-automation than going to full automation. When you convert information from sensing devices into machine control, you pass a big threshold in cost. You have already reduced your manpower substantially and any further decrease by using electronics may be uneconomical.

Dove: It doesn't seem to me that you are going to be able to get rid of the manual control of machines. Suppose you are tamping and the tamping tools are in the ground when the machine stops.

Reid: When this happens, you would either plug in a replacement control unit or revert to manual

control by an operator.

Bailey: You can never eliminate an attendant with a machine or group of machines, as situations will always arise that will make it necessary to over-ride automatic controls.

Reid: I don't think we are talking about eliminating individuals as much as we are improving the quality and efficiency of the machines we

are now using.

We at present have tamping machines that will tamp track to a predetermined pressure exerted upon the tamping blades. However, I think improvements could be made that would take various ballast conditions into consideration, such as cemented ballast.

Butkovich: Perhaps this could be taken care of by a sensing device.

Dove: How about the lining? It seems to me there is a good place for electronics to step in to analyze curves and store the information on some memory device. This informa-

#### Electronics cont'd



M. S. REID: "Some of the machines we are now using could possibly be operated by remote control... whereby one man could operate all ... of the machines."



T. M. EVANS: "The average radio and TV repair shop would not have men or equipment capable of making . . . repairs . . . to plug-in replacement units."



N. V. BUTKOVICH: "A sensing device using the principles of either sonics or radioactive testing might be developed that would automatically inspect ties."



R. E. DOVE: "You are not going to be able to get rid of the manual control. Suppose ... the tamping tools are in the ground when the machine stopped."

tion could then be imparted to a lining machine which would then line the curve without an operator.

**Butkovich:** Yes, that could be done. Actually the problem would be synchronization.

**Evans:** Theoretically, an electronic device could record the alinement of the curve, memorize it and know where it starts and ends. You could then reset the machine to go back over and line the curve and end up at any predetermined point.

**Reid:** This may be fine from a theoretical viewpoint, but we still must take into consideration physical fixed points such as bridges, highways and railroad crossings, etc., that would be encountered.

**Bailey:** What power capacity and space are these electronic control units going to require?

Butkovich: These electronic devices are of such size that they could be placed in the trunk of an ordinary automobile and operated from its normal battery. However, there is no way to estimate the amount of power that might be required by the activating devices. It depends entirely upon the function to be performed.

**Reid:** Are we going to be able to keep the electronic controls and equipment in repair and will they be reliable?

**Butkovich:** The most dependable machines are normally the most expensive. The most practical and economical way to do this would be to have standby equipment that could be cut in by the operator.

Bailey: You will have to do that because the field mechanics will be limited in their ability to make repairs to this type of control equipment. The men who are presently servicing and maintaining these machines are either going to have to



R. W. BAILEY: "You can never eliminate an attendant . . . as situations will always arise that will make it necessary to override automatic controls.

learn a complete new field or replace the bad-order control unit with a "plug-in" spare.

**Dove:** Would the operator know when the electronic equipment was not functioning properly and required replacement?

Butkovich: The device will have to be on a fail-safe basis. The moment one of these devices ceases to function, relays will drop out and the machine will stop. Miniaturization has gone so far in modular construction of electronic equipment that there should be no problem in plugging in replacement units without complicating your field maintenance service.

**Bailey:** Could these "plug-in" units be taken to a local radio shop for repairs?

**Evans:** The average radio and TV repair shop would not have men or equipment capable of making the required repairs. However, the repairs could be made at a factory authorized shop or a shop specializing in servicing industrial electronic equipment.

Butkovich: As the railroad's use of electronics expands, especially in communications, we are establishing well-equipped shops with qualified technicians where these "plug-in" units could be repaired.

**Reid:** What about the replacement units? Are they going to be very expensive?

**Evans:** I would say they are going to be very reasonable. Let's put it this way. Can you afford to be without them?

Reid: We in the maintenance field want to pursue the use of electronics as much as it can be economically justified. Any such device which will enable our machines and men to do more and better work will receive management's consideration.

# AREA, NRAA under the same roof

## Annual meeting and products exhibit are both being held in Chicago's new exposition center

"Convenient" is the word to describe the arrangements made for the 1961 annual convention of the American Railway Engineering Association and the concurrent products exhibition of the National Railway Appliances Association.

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Both are being held in the same building - Chicago's brand-new exposition center. Known as McCormick Place, the center is two miles from Chicago's "loop." Complete details of the exhibit, including a list of the exhibitors and a floor plan of the exhibit hall, are given on follow-

While the Conrad Hilton hotel has been designated the convention headquarters, all the AREA sessions - and all related functions, such as committee meetings and luncheons - are being held in McCormick Place one level below the exhibit.

Registration will be carried out at facilities provided directly inside the main entrance of the exhibit hall. Pre-convention registration will start at 9:00 am, Monday, March 6, the opening day of the exhibit. During the three-day meeting, starting on March 7, registration will begin at 8:00 am each day.

#### BE OUR GUESTS!

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- Open 8 am each day of AREA meeting
- Inside main entrance of exhibit hall

**EVERYONE WELCOME!** 

#### Schedule of events for regular AREA sessions

Watch for special features indicated thus .

#### TUESDAY MORNING, MARCH 7, 9:30 to 12:00\_Banquet Room

- Presidential Address-E. J. Brown
- Reports of Executive Secretary Neal D. Howard and Treasurer A. B. Hillman
  Address—"Railroad engineering in competitive transportation," by C. D. Buford, vice
  president, operations and maintenance department, AAR
  Address—"Research—Here and abroad" (illustrated), by W. M. Keller, vice president,
- research department, AAR
- Motion Picture—"Mariners and high hats," showing the construction of Great Salt Lake Fill, with introductory remarks by H. M. Williamson, chief engineer, Southern Pacific

#### TUESDAY AFTERNOON, 1:30 to 5:30-Banquet Room

#### Reports of Committees

- Contract Forms
- **Engineering and Valuation Records**

#### Clearances

Address—"The future of track maintenance on British railways" (ill.), by A. N. Butland, chief civil engineer, London Midland Region, British Railways

Waterways and Harbors
Water, Oil and Sanitation Services

● Address—"Control of diesel fuel oil spillage—Results obtained from use of automatic shut-off fueling nozzles" (illustrated), by V. C. Barth, chief metallurgist and engineer of tests, Chicago & North Western

Yards and Terminals

- Yards and Terminals

   Motion picture—"The Neff yard project" of the MP at Kansas City

  Economics of Railway Location and Operation

   Motion Picture—"The better way," showing the construction of the Santa Fe's

  44-mile line change in northern Arizona

  Address—"Observations made on my recent trip behind the Iron Curtain (illustrated), by

  F. R. Woolford, chief engineer, Western Pacific

#### WEDNESDAY MORNING, 9:00-11:55-Assembly Hall

#### Reports of Committees

- Cooperative Relations with Universities

   Address—"The 1961 civil engineering graduate," by Professor K. B. Woods, head of department of civil engineering, Purdue University
- **Wood Bridges and Trestles** Address—"Epoxy resins—A new tool for the railroads" (iil.), by Dr. Wm. J. Belanger, technical director, resin development, Jones-Dabney Company

Address—"New shapes in concrete for tomorrow's railroads" (ill.), by James D. Piper, vice president for promotion, Portland Cement Association

- Iron and Steel Structures

   Address—"Design and fabrication of a welded rigid-frame railroad bridge" (ill.),
  by J. P. Jaso, welding engineer, Lincoln Electric Company

#### ASSOCIATION LUNCHEON-BANQUET ROOM, 12 NOON, WEDNESDAY

Address—"The railroads look to the future," by H. C. Murphy, president, Burlington Lines

#### WEDNESDAY AFTERNOON, 2:15 to 5:30-Assembly Hall

#### Reports of Committees

- **Highways** Electricity
- Buildings
- **Wood Preservation**

- Address—"Said the tie-man to the track-man," by D. B. Frampton, Jr., vice president, D. B. Frampton & Co., and past pres., Railway Tie Assn.
- Economics of Railway Labor

  Address—"Economics of present-day track and structures maintenance," by C. J. Henry, chief engineer, Pennsylvania

  Maintenance of Way Work Equipment

  Motion Picture—"Mechanized loading and unloading of crossties on the Santa Fe,"

with commentary by G. E. Roberts, assistant engr., Santa Fe

#### THURSDAY MORNING, 9:00 to 12:30—Banquet Room

#### Reports of Committe

- Roadway and Ballast
  - Address—"Current research on right-of-way brush control problems" (ill.), by W. E. Chappell, prof. of plant physiology, Va. Agri. Exper. Station

#### Track

- Motion Picture—"Mirror of German federal railways"
- Address—"The effect of heavy wheel loads on rail—as observed on the QNS&L" (ill.), by G. M. Magee, dir. of engineering research, AAR

  Special Committee on Continuous Welded Rail

  Motion Picture—"Laying continuous welded rail on the Santa Fe's 44-mile line change in northern Arixona."

KENNETH CAVINS
President, NRAA

The past year has been a busy one for gental but hard-driving Kenneth Cavins. In addition to his regular duties as vice president of Fairmont Railway Motors, Inc., he has had the responsibility of directing the activities of the NRAA at a time when it had made the momentous decision to stage its 1961 exhibit at Chicago's brand new exposition center. The success of the exhibit is a tribute to the effects of Mr. Cavins and his fellow officers in

# NRAA exhibitors offer many new products

Measured by the floor area occupied the NRAA exhibit this year is the largest ever held by that group. Even more important is the fact that an unusually large number of new products, particularly machines, is being shown, some by companies that never before exhibited at a railroad show. See the list on the next two pages for brief descriptions of many of the new products.

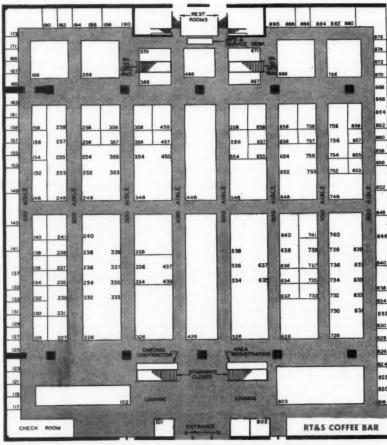
• Representatives of 107 railway supply companies will be on hand to greet visitors when the National Railway Appliances Association exhibition opens at McCormick Place, Chicago, at 8:30 am, March 6.

The curtain will thereby be raised on the largest exhibit ever put together by the NRAA. The area occupied, amounting to 100,000 sq ft of floor space, is 40 per cent larger than that devoted to any previous NRAA exhibit at the Coliseum.

But the exhibit has more than size to commend it. Every indication points to the conclusion that the products on display will include a greater number and variety of entirely new products than ever before. One such indication is the fact that at least 20 of the exhibitors are participating in an NRAA exhibit for the first time. Another is the fact that many of the exhibiting companies have been working feverishly for months to get new products ready for unveiling at the show. In some instances this turned out to be a very close race, with pilot models being rushed directly from machine shops to the exhibit hall.

It was the great number of new products being introduced at the exhibit that prompted this magazine to devise a method whereby interested railroad men may conveniently obtain information regarding them. To put this plan into effect each exhibitor was asked to supply a brief description of not more than two new or improved products being featured at the exhibit for the first time. The material received has been incorporated in the list of exhibitors given on the following two pages. Obtaining more information about any product is merely a matter of noting the key number and encircling the corresponding number on one of the attached reader service cards, which is then filled out and mailed.

It is felt that this feature will be particularly helpful to readers who are unable to attend the meeting and exhibit.



BOOTH NUMBERS on this floor plan of the exhibit hall correspond with numbers given opposite names of exhibitors as listed on the two following pages. AREA members may reach the meeting room by using the stairways at the rear of the exhibit hall.

USE THIS LIST TO FIND NEW PRODUCTS AT THE NRAA EXHIBIT . . . THEN USE THE CARDS AT THE RIGHT TO REQUEST MORE INFORMATION ABOUT THEM

Achuff Railway Supply Co. . . . . . . 237

Achuff Railway Supply Co 237
Aeroquip Corporation 359
High-pressure hose in large sizes. (1)
<ul> <li>Hose couplings of the push-pull, self-sealing type. (2)</li> </ul>
Amchem Products, Inc 133
Weed killer Amizine for general weed and
grass control, especially around buildings,
in yards, etc. (3)
American Brake Shoe Company, Railroad Products Division 626
Mechanical car retarder for bringing rolling
cars to stop at ends of gravity classification-
yard tracks. (4)
American Concrete Crosstie Corp 802
Prestressed concrete tie of type designed by AAR research staff. (5)
American Hoist & Derrick Co 657
Armco Drainage & Metal Products,
nc 227  • "World's largest" metal railroad culvert de-
signed by the ring-compression theory, us-
Ing light-gauge metal. (7)
Athey Products Corp248, 252, 254, 353, 355
O Vacuum-type switch cleaner consisting of
Vacuum-type switch cleaner consisting of rubber-tired, off-track unit with flanged
guide wheels. (7)
<ul> <li>Moto-scaffold, a rail-highway self-propelled unit with movable side and top platforms</li> </ul>
for speeding tunnel repairs. (8)
Atlantic Trailer Corp., The 102
Self-contained six-man camp trailer, 8 ft by 32 ft in size, with a new and different sani-
fary system. (9)
Office trailer, 8 ft by 35 ft in size, for use
as yard or supplementary office facility.
Austin-Western Co
ty range. Self-propelled. Features compact three-wheel design. (11)
Hydraulic crane (Model A10) of 11 tons
Hydraulic crane (Model 410) of 11 tons capacity. Heavy-duty four-wheel design.
Serr-propelled. (12)
Bernuth, Lembcke Company, Inc. 457
Binks Manufacturing Co 655
Bird & Son, Inc
Bogle, R. H. Co., The 239
Buck Equipment Corp 182
Caterpillar Tractor Co 326
Chicago Pneumatic Tool Co 357
Submersible sludge pump, designated CP-71, with a capacity of 90 gpm at 75-ft head.
with a capacity of 90 gpm at 75-ft head.
Handles fluids containing solids. (13)

#### Here's how to de

- (1) Check through ! key numbers at special interest
- (2) Encircle the cor the cards at the after writing in address. No po

In this list the booth number exhibitors. These correspond wit and are for use in locating the for use in requesting more inf ends of the product description

Air impact wrench with high-torc drive for screw-spike driving, stee and machine maintenance. (14)

Chipman Chemical Co., Inc. .

Cox, W. T. Co., Inc. 334, 336, 4

Soil sterilant called Bare Trax. A dr herbicide to meet vegetation pro-der various climatic conditions. (
"Big Boy" Rail-Road conversion heavy-duty hydraulic bogie-wheel tachment for large trucks and or

Cullen-Friestedt Co.

Burro Medel 40 Ditcher. Has %-cu et on a dipper stick with crowdin tracting actions. (17)

**Dearborn Chemical Company** 

Aluminum-pigmented protective co OX-ID AZ). Intended as a one-co

tion for bridges. (18)
Improved filming amine, Super
Said to be 100 per cent active is
sate return-line treatment. (19)

Dow Chemical Company

Grass killer formulation Redaps
liquid sald to include a high of
wetting and penetrating ingred
Brush and weed killer called K
to give longer residual and more
control of weeds and woody p **Duff-Norton Company** .

duPont deNemours, E. I. & Co.,

Brush killer called Dybar. A pelle uct designed for economical b trol. (22)
 Weed killer called Trysben 200. product for control of desp-roote perennial weeds. (23)

**Eaton Manufacturing Company** Fabreeka Products Co. . .

Fairmont Railway Motors, Inc. ...... 526, 534, 536, 538, 6

Hydraulic spile driver W100 Serie transverse track for driving a one or both rails. (34)
 Dual tamper W110 Series A. A ge pose unit with eight hydraulically

air guns. (35)

Foundation Equipment Corp. . .

Delmag diesel pile hammer. (26)

General Chemical Division, Allie

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President, NRAA

The past year has been a busy one for genist but hard-driving Kenneth Cavins. In addition to his regular duties as vice president of Fairmont Railway Motors, Inc., he has had the responsibility of directing the activities of the NRAA at a time when it had made the momentous decision to stage its 1961 exhibit at Chicago's brand new expesition center. The success of the exhibit is a tribute to the efforts of Mr. Cavins and his fellow officers in

# NRAA exhibitors offer many new products

Measured by the floor area occupied the NRAA exhibit this year is the largest ever held by that group. Even more important is the fact that an unusually large number of new products, particularly machines, is being shown, some by companies that never before exhibited at a railroad show. See the list on the next two pages for brief descriptions of many of the new products.

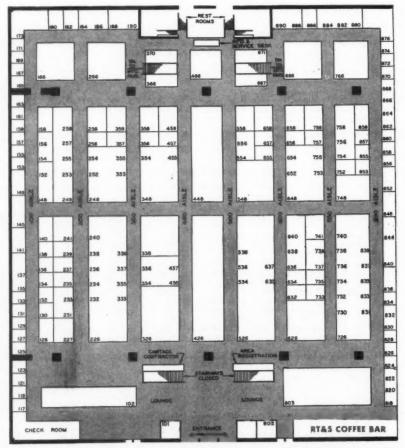
• Representatives of 107 railway supply companies will be on hand to greet visitors when the National Railway Appliances Association exhibition opens at McCormick Place, Chicago, at 8:30 am, March 6.

The curtain will thereby be raised on the largest exhibit ever put together by the NRAA. The area occupied, amounting to 100,000 sq ft of floor space, is 40 per cent larger than that devoted to any previous NRAA exhibit at the Coliseum.

But the exhibit has more than size to commend it. Every indication points to the conclusion that the products on display will include a greater number and variety of entirely new products than ever before. One such indication is the fact that at least 20 of the exhibitors are participating in an NRAA exhibit for the first time. Another is the fact that many of the exhibiting companies have been working feverishly for months to get new products ready for unveiling at the show. In some instances this turned out to be a very close race, with pilot models being rushed directly from machine shops to the exhibit hall.

It was the great number of new products being introduced at the exhibit that prompted this magazine to devise a method whereby interested railroad men may conveniently obtain information regarding them. To put this plan into effect each exhibitor was asked to supply a brief description of not more than two new or improved products being featured at the exhibit for the first time. The material received has been incorporated in the list of exhibitors given on the following two pages. Obtaining more information about any product is merely a matter of noting the key number and encircling the corresponding number on one of the attached reader service cards, which is then filled out and mailed.

It is felt that this feature will be particularly helpful to readers who are unable to attend the meeting and exhibit.



BOOTH NUMBERS on this floor plan of the exhibit hall correspond with numbers given opposite names of exhibitors as listed on the two following pages. AREA members may reach the meeting room by using the stairways at the rear of the exhibit hall.

USE THIS LIST TO FIND NEW PRODUCTS AT THE NRAA EXHIBIT . . . THEN USE THE CARDS AT THE RIGHT TO REQUEST MORE INFORMATION ABOUT THEM

Achuff Railway Supply Co 237
Aeroquip Corporation 359
High-pressure hose in large sizes. (1)     Hose couplings of the push-pull, self-sealing
type. (2)
Amchem Products, Inc 133
Weed killer Amizine for general weed and grass control, especially around buildings, in yards, etc. (3)
American Brake Shoe Company,
Railroad Products Division 626  Mechanical car retarder for bringing rolling cars to stop at ends of gravity classification-
yard tracks. (4)
American Concrete Crosstie Corp 802  • Prestressed concrete tie of type designed by
AAR research staff. (5)
American Hoist & Derrick Co 657
Armco Drainage & Metal Products,
Inc
signed by the ring-compression theory, us-
Ing light-gauge metal. (7)
Athey Products Corp248, 252, 254, 353, 355
Vacuum-type switch cleaner consisting of
Vacuum-type switch cleaner consisting of rubber-tired, off-track unit with flanged wilds wheels (7).
guide wheels. (7)  • Mete-scaffold, a rail-highway self-propelled unit with movable side and top platforms
for speeding funnel repairs. (8)
Atlantic Trailer Corp., The 102  Self-centained six-man camp trailer, 8 ft by
32 ft in size, with a new and different sani- tary system. (9)
• Office trailer, 8 ft by 35 ft in size, for use
as yard or supplementary office facility.
Austin-Western Co
• Hydraulic crane (Model 110) in 5-ton capaci-
ty range. Self-propelled. Features compact three-wheel design. (11)
Hydraulic crane (Model 410) of 11 tons
Hydraulic crane (Model 410) of 11 tons capacity. Heavy-duty four-wheel design. Self-propelled. (12)
Bernuth, Lembcke Company, Inc. 457
Binks Manufacturing Co 655
Bird & Son, Inc
Bogle, R. H. Co., The 239
Buck Equipment Corp 182
Caterpillar Tractor Co 326
Chicago Pneumatic Tool Co 357
Submersible sludge pump, designated CP-71, with a capacity of 90 gpm at 75-ft head.
Handles fluids containing solids. (13)

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#### Here's how to do it:

- (1) Check through the list of exhibitors, noting the key numbers at ends of product descriptions of special interest to you.
- (2) Encircle the corresponding numbers on one of the cards at the right, then drop it in the mail after writing in your name, title, company and address. No postage required.

In this list the booth numbers are shown directly opposite the names of the exhibitors. These correspond with numbers shown on floor plan on opposite page, and are for use in locating the booths of particular companies. The key numbers for use in requesting more information are those shown in parentheses at the ends of the product descriptions.

Air impact wrench with high-torque spline drive for screw-spike driving, steel erection and machine maintenance. (14)	•
Chipman Chemical Co., Inc 459	G
Cox, W. T. Co., Inc. 334, 336, 435, 437	G
Seil sterilant called Bare Trax. A dry-pelleted herbicide to meet vegetation problems un- der various climatic conditions. (15)	

 "Big Bey" Rail-Road conversion unit. A heavy-duty hydraulic bogis-wheel type attachment for large trucks and cranes. (16) Cullen-Friestedt Co. ......231-233

Burre Model 40 Ditcher. Has ¾4-cu yd buck-et on a dipper stick with crowding and re-tracting actions. (17)

Dearborn Chemical Company .... 366 Aluminum-pigmented protective coating (NO-OX-ID AZ). Intended as a one-coat applica-

OX-10 A2, Interesce as a one-coar approx-tion for bridges. (18) Improved filming amine, Super Filmeen. Said to be 100 per cent active in conden-sate return-line treatment. (19)

Duff-Norton Company ..... 256

duPont deNemours, E. I. & Co., Inc. .....830-832

Brush killer called Dybar. A pelleted product designed for economical brush control. (22)
 Weed killer called Trysben 200. A liquid product for control of desprooted nextous

perennial weeds. (23)

Eaton Manufacturing Company .. 658 Fabreeka Products Co. .....135-137 Fairmont Railway Motors, Inc.

.....526, 534, 536, 538, 635, 637

Hydraulic spile driver W100 Series A, Has a transverse track for driving spikes for one or both rails. (24)
 Dual tamper W110 Series A. A general-purpose unit with eight hydraulically controlled air guns. (25)

Foundation Equipment Corp. . . 554-556 Delmag diesel pile hammer. (26)

Gandy Wagon Corp. ....... 154-156

Double cable truck. New highway-rail model featuring electric turntable jack. (27)

General Chemical Division, Allied

• Liquid brush killer called Urab. A fenurontype product suitable for application by spray equipment. (29)

Goodyear Tire & Rubber Co. . . . . 140 Serman-Rupp Company ...... 125 painting. (30)

Hayes, Brice Co., The ..... 671 Op-tronic track finishing system featuring new radio and motor and redesigned spot and rabbit boards. (31)

Track-lining target for use with Hayco Mo-del HL Lining Scope. (32)

Hayes Track Appliance Co. .... 101 Holstein, Fred W. Co. ..... 149

Reil changer for transposing rail on curves, relaying rail in yard tracks and for building new tracks. (33)
 Tie Shear for removing failed crossies without disturbing the track surface. (34)

Industrial Brownhoist Corp. .... 870 Ingersoll-Rand Company 636, 638, 640

 Gyre-Fie compressers for power take-off requirements, direct or belt driven. (35) International Harvester Co.

......880, 882, 884 International Railroads' Weighing Corp. ..... 117

Jackson Vibrators, Inc. 

Jack-Spot tamper with light-beam surfacing device consisting of radio-controlled forward buggy and rear sensor buggy. (36)

Utility tamper similar to Jack-Spot tamper but without jacks. Has four tamper units mounted two over each rail. (37)

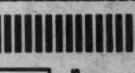
Jordan, O. F. Company ...... 558

Improved snew plaw with enow-preeder wings equipped with two diagonal curved fins for lifting snow at sides. (38) Kalamazoo Manufacturing Co.

......348, 354, 455

in-track rail saw. A self-propelled unit equipped with band saw and mist coolant for sawing of rails in track. (39)
 Multiple track drill for hydraulically boring three bolt holes in rails simultaneously. Self-propelled. (40)

Kershaw Manufacturing Co., Inc. 



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738, 740, 831, 833, 835, 837, 839 liner or Hydraulic Spike Puller in lining Multiple tie saw for sawing and extracting failed ties without humping the track. Self-propelled. (42)
 Track liner for lining track in a one-man through turnouts. (62)
Midget Line Indicator. Used with Switch liners when lining through turnouts in yards or doing spot lining. (63) operation. (43) Northwestern Motor Co. ..... 876 Brush cutter that simultaneously cuts both sides of right of way, handling growth up to 6 in. in diameter. (64) Kohler Company ...... 834 Konvex Tie Pad Co. . . . . . . . . 129 Tie pad made from truck-tire rubber and fabric. Both sides coated with rubberized Osmose Wood Preserving Co. . . 856 Bridge inspection and treating service. (65)
 Osmoweld, an epoxy-resin formulation to composition. (44)

• Tie seal of rubberized composition for application under tie plate. Said not to flow in summer or get brittle in winter. (45) raise strength of marginal and sub-marginal areas in wood structures. (66) P&M Company, The ..... 358 LeRoi Division, Westinghouse Air Brake Co. ..... Permacrete Products Corp. ..... 131 Linde Company, Div. of Union Car-Pettibone Mulliken Corp. ..... 426 Speed Swing crane specially equipped for roadway crossing renewal work. (67) Plasser Railway Machinery Maintenance Equipment Co. . . . 659 .........648, 652, 654, 753, 755 Mannix International ...... 852 Plassermatic HM 300 ST tamper operates as production machine and as jack tamper, raising as much as 10 in. (68) Auto-Track machine for plowing out foul ballast, ejecting failed ties, and lining track, all in one pass. (47) Pullman-Standard ..........166, 266 Martin Engineering Co. . . . . . . 153 • Indicating device for Tie Spacer enables op- Car shaker for vibrating hopper cars and keeping materials flowing during unloading erator to space ties precisely without prior marking on rails. (69) operations. (48) Racine Hydraulics & Machinery .. 548 Matisa Equipment Corp., The Multiple tie tamper intended for production ......249, 253, 255, 257, 259 leveling, small out-of-face repairs and tierenewal work. (70) Light tamper with hydraulically controlled Self-contained unit which simultaneously tools. Self-propelled. (49) saws and drills rails in track. (71) New model dual-purpose tie-renewal ma-chine with hydraulic track jack and rail clamps for lifting rails. (50) Rail Joint Company ..... 241 Bondarc TP, an epoxy-base adhesive for bonding tie plates to crossties at treating McKiernan-Terry Corp. ..... 824 plant prior to treatment. (72) Diesel pile hammer with ram weights of 2,000, 2,800 and 4,000 lb and with maxi-Bondarc 6, an epoxy material for gluing rail joints. (73) mum practical energy of 32,000 ft-lb. (51) Railroad Rubber Products Co. . . . 121 Dualtube lubrication system, with pressure lubricator and hose, for lubrication of steam Economy rubber tie plates. (74) Vinyl resin insert plug for spike holes. (75) pile hammers. (52) Meyer Machine Co. . . . . . . . . 155 Rails Company, The ...... 145 Track lubricator for applying greate to eliminate curve and wheel wear. (76) Tulite safety device to prevent workmen from falling from poles or ladders, even if Snow detector puts switch heaters into acthey black out. (53)
Tapered tubular floodlighting poles for railtion when snow and ice conditions warrant road yard lighting. (54) Mid-West Forging & Mfg. Co. . . . 634 Railway Equipment & Publications Co. . . . . . . . . . . . . . . . 826 Minnesota Mining & Mfg. Co. ... 141 Railway Maintenance Corp. Morrison Railway Supply Corp. .. 130 Motorola Communications & Elec-236, 238, 240, 333, 335, 337, 339 tronics, Inc. ..... 848 • Combination jack-and-production tamper Pocket radio transmitter with ½ watt output. Fits palm of hand, includes built-in microphone and loop antenna. (55)
 Universal Motrae radio for 64/12-volt operuses electronic raising beam for automatic operation and control. (78) • Auto-Spiker feeds spikes to holder, then sets and drives them into ties. (79) ation. Self-contained 25-watt transmitter and Railway Track & Structures-Railway receiver. (56) Nalco Chemical Company Age—Railway Purchases & Stores ..... 356 Diuren-berate granular herbicide. Designated
 Nalco H-174K. (57) Railway Track-work Company ... 338 Reade Manufacturing Co., Inc. 188-190 National Cylinder Gas, Div. Remington Arms Company, Inc. . . 126 Chemetron Corp. .....754, 756, 758 Abrasive rail cutter with 26-in cutting wheel Rochester Ropes, Inc. ..... 123 for cropping rails in track. (58)

Multiple rail drill that will bore as many as Truck rope sling of light-weight wire rope, for securing trucks to car during lifting operation. (80)

Piggy-Back sling consists of, braided sling assembly for loading and unloading piggy-back sling consists. six bolt holes in rails prior to being cropped in track. (59) National Lock Washer Co., The .. 735 Nolan Company, The .....840, 844

Combination Rail-Road trailer for use on both highways and rails. (60) back cars. (81)

Schroeder Brothers Corp. ..... 828 Portable hydraulic-circuit tester. Includes 50 or 100-gpm flow meter, 2, 3 or 5,000-psi pressure gage and a temp, gauge. (84) Micronic hydraulic filter has replaceable filter element with initial particle selection rating from 5 to 25/35 microns. (85) Sperry Products Co. ..... 836 Concrete crosstle composed of two reinforced-concrete blocks connected by Y-shaped steel tie bar. (86) ngines. (87) New lubricant in pressurized cans for lubricating exposed gears. (88) Tamper Limited ...... 666 Spike driver feeds spikes to holder, starts and drives them in ties with one-man op-eration, Model SDF. (89) Autojack Electromatic tamper completes track-raising operation to final surface with automatic production. Model UDEJ-2. (90) Teale & Co. . . . . . . . . . . . . 874 • Hydraulic crane designed for mounting on any truck having a curb weight of 5,500 lb or more. (91) Thermex Metallurgical, Inc. .. 184-186 • Thermit Self-Preheat Rail Weld for making weld in 15 min in any section up to and including 115-lb rail. (93) Transport Products Corp. . . . . . . 173 Switch-point roller assembly for facilitating the throwing of switches. (94)
 Crosstie unloader with two high-speed hoists. Rolls on top of standard gondola cars for lifting ties over side. (95) True Temper Corp. ..... 741 One-piece Channeloc rail anchor with Ushaped cross section. (96) Unit Rail Anchor Corp. ...... 180 U. S. Borax & Chemical Corp. . . 158 Weed killers Ureabor 31 and Ureabor 62. Combine three herbicides in easy-to-apply granules. (97) Weed killer (Benzabor) for killing deeprooted and noxious perennial or annual herbaceous weeds. (98) U. S. Crosstie, Inc. ..... 872 Prestressed-concrete crosstle of the Karig system. (99) Vulcan Materials Company .... 859 Watson Publications .......... 632 Western Railroad Supply Co., Div. of Western Industries.... 759 Steel flangeway (Guardmaster) provides smooth surface for vehicles while passing over tracks at grade crossings. (100) White Manufacturing Co. ..... 235

Switch heaters which burn propane gas. Wisconsin Motor Corp. ..... 370 Woodings-Verong Tool Works . . 733 Rust-Oleum Corp. ..... 127 Woolery Machine Company .... 886 York Modern Corporation ..... 119 Ballast rake with scarifier. Loosens ballast, gathers it into row for loading. Fits tractors with 3-point hitch. (102) Schield Bantam Company ...148-152

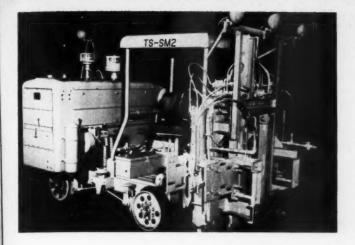
• 11-Ten Rail-Reader mounted on Model 306 Carrier allows for on and off-track work. Model T-350. (83)

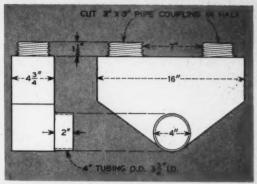
weight. (61)

Push car of tubular-steel design. Light in

Nordberg Manufacturing Co. . . . . 448

• Switchliner attachments for use with Trak-





DUAL MANIFOLD (above) makes it possible to use a combination of filter elements. This enabled the NYC to standardize on three element types, two of which are shown on the spike-driving machine (left).

# Adopts dry filters for M/W engines

Convinced that engine life will be extended and filter-element replacement made easier, the NYC has adopted the dry-type air filter as standard for all engines powering its M/W equipment. A dual manifold was also developed to reduce the number of filter-element types needed, thereby minimizing inventory.

● Because of the high dust conditions under which all railroad M/W equipment must work, engines on these units are subject to severe wear. The New York Central believes that proper air filtration is essential for prolonging the service life of every such unit and has adopted the dry-type filter as standard. This filter contains a replaceable micronic paper element as manufactured by Purolator Products, Inc., Rahway, N. I.

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The dry-type air filters have become an integral part of our maintenance-of-way equipment," said M. E. Kerns, superintendent maintenance equipment for the NYC system. He explained that the change in air filtration is being made as the machines are overhauled. Nearly all of these units, including over 3,000 specialized machines and 400 trucks. have been converted to the dry-type filters. Also, to take the guesswork out of when to change a filter element, air-filter restriction indicators have been installed on each piece of equipment.

"Based on extensive field tests and our current use of the dry-type filters," Mr. Kerns continued, "they are now specified on all new maintenance-of-way equipment we purchase."

#### **Dual manifold designed**

One of the big problems in converting the filtration to the dry type was the great variance in air intake as required by engines of different ratings. This feature threatened to require a large inventory of various size filters. To overcome this problem, the road's M/W shop force at Jackson, Mich., worked with Purolator engineering personnel to design a dual manifold that permits the needed capacity to be obtained by using the proper combination of a limited number of different sizes of filter elements.

The advantage of the manifold is that it allows standardization in filter-element replacements. "We need only three types of filter elements to keep all equipment properly filtered," said Mr. Kerns. "Replacement is easy when there isn't a large and confusing inventory problem."

#### How filter works

The Purolator dry-type air filter uses a resin-impregnated cellulose as the filtering medium. This material provides a network of tiny fibers which entrap air-borne particles measured in microns. The degree of porosity and the resin content of the filter elements are carefully controlled. To give maximum filtering area and dirt-holding capacity, the micronic element is accordion-pleated, looped into a circle of the desired diameter, the ends sealed together and then encased in a metal framework. This is the filter element which is replaceable.

The element is placed in a metal unit consisting of a permanent base plate and a removable cover held in place by a wing nut. This assembly is then mounted on the air-intake port of the carburetor.

As air is gulped by the carburetor, it is drawn into the metal unit through an air-intake port, then passes through the filter element to enter the engine. Dust particles collect on the micronic element, forming a porous dirt bed which in turn removes even smaller particles. Over a period of time, the dirt bed builds up cutting the flow of air to the engine. Before this reaches the point where engine performance becomes sluggish, however, the filter element should be changed out.

For determining the proper time when a change of the element is desirable, a warning device is available. This consists of a vacuum switch which is activated when a dirty filter restricts the flow of air and turns on a warning light in the operator's cab.

BELOW — NCG's OBear multiple rail drill is designed to bore six bolt holes simultaneously, three in each adjacent rail. It has an automatic feed and adjustments for various drilling centers and bolt center lines. RIGHT — NCG's OBear abrasive rail cutter crops rail ends in track with an oscillating 26-in high-speed cutting wheel. Neither water nor oil lubricants are needed for cutting. Power is supplied by 24-hp 4-cycle engine.





# New aids for rail

The practice of cropping rails in track is attracting an increasing amount of interest. Those roads that have done this kind of work feel there are important savings to be realized from it. Adding to these savings is the fact that new machines have been made available for doing the work more economically.

● The Pennsylvania apparently was ahead of the times back in 1937 when it introduced the practice of cropping rails in track. For the practice was soon discontinued.

But times have changed. What was thought to be an uneconomical practice 20 years ago is now considered by a number of roads to hold promise of considerable savings. Among these is the PRR which last year had two specially equipped rail-cropping gangs in operation. Other roads known to have done this kind of work include the Louis-

ville & Nashville, the Southern Pacific and the Union Pacific. And still others have indicated an interest in it.

Why this new interest in in-track rail cropping? Basically it comes down to a matter of money. The general practice is to lay new rail in the main line to get usable rail for branch-line tracks. The PRR figures that the cropping of rails saves laying new rail to get usable rail.

Last year, for instance, this road was faced with a need to improve joint conditions on branch lines



KALAMAZOO'S self-propelled band-type rail saw is equipped with a mist coolant. The saw is operated and controlled through hydraulic pumps and valves, powered by a 16-hp two-cylinder gas engine. Car can be operated forward or in reverse.



KALAMAZOO'S three-spindle rail drill is operated hydraulically. It is equipped with a Vickers hydraulic system powered by a 30-hp Wisconsin air-cooled engine. Car has hydraulic turntable for turning and removing it from the track.



LEFT — RTW's rail cutter also uses a 26-in abrasive cutting wheel for cropping rails in track. The operator feeds cutter with hand wheel at end. This unit is now being redesigned to give extended wheel life.

BELOW — RTW's multiple spindle drill bores three bolt holes at a time at points determined by amount of rail to be cropped. This unit also is being redesigned to drill from outside of rail where ties can be adzed.



# cropping in track

where rail with built-up ends was chipping and battering. To correct the condition the road decided again to try cropping the ends in track in lieu of using new rail to get usable rail. This time the practice proved economical because of the availability of improved types of equipment for sawing and drilling the rails.

The L&N had a number of reasons for doing an in-track rail cropping job last year. This operation, as explained by J. K. Gloster, engineer maintenance of way of the road,

involved the cropping of 190 rails on a bridge structure between Evansville, Ind., and Henderson, Ky.

The rail on this structure consisted of 131-lb rail laid in 1947 with joint packing. Audigage and visual examination indicated the presence of numerous bolt-hole cracks, although the rail otherwise was in excellent condition.

It was decided to crop at least part of this rail in track. This decision was due in part to a lack of replacement rail. Another reason, as explained by Mr. Gloster, was the excessive loss of time in clearing for trains that would have been involved if the defective rail had been replaced with new rail. The cropping work, on the other hand, could be done with considerably less loss of time because the equipment used could be taken off the track at frequent intervals on the bridge.

Manufacturers, noting the increased interest in rail cropping, have introduced new types of equipment for doing the work. Some of the new machines are pictured and described on these pages.



RACINE'S Krop-Master simultaneously saws the rail and bores three bolt holes. Intended primarily for making field cuts by rail gangs, this unit is being adapted for in-track production cropping by installing two saws and two drill heads.



OTHER MACHINES used by reil-cropping gangs include flexibleshaft grinders, power wrenches and a winch car or lecomotive crane for pulling rails forward when closing the gaps and for inserting filler rails.

# Tie-renewal cost on long bridge

In renewing ties on the CNR's Victoria bridge the use of a roller conveyor for handling the new and old ties made it possible to reduce the number of manhours required to change out a tie from 3.2 to 0.88 and the cost from \$5.50 to \$1.50. This account of the method used is based on a report of a subcommittee of AREA Committee 22—Economics of Railway Labor.

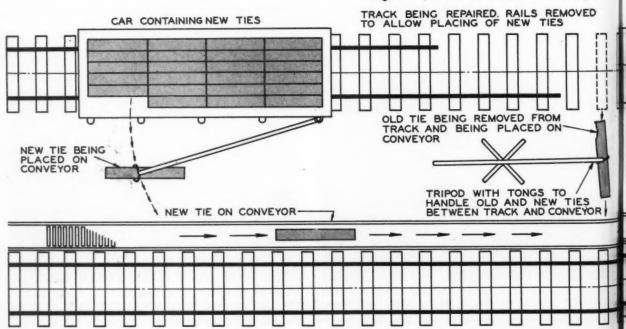
One-third of ties on this 6600-ft bridge . . . . . . . . . were changed out using this set-up

 Recent experience on the Canadian National underlines the fact that a simple idea, involving simple equipment, can often be translated into dramatic savings.

The idea in this case involved the use of a roller conveyor for handling the old and new ties on a job in which bridge timbers were being changed out on a long bridge. Scene of the project is the CNR's double-track Victoria bridge across the St. Lawrence river at Montreal. This is a through-truss bridge approximately 6600 ft in length.

When undertaking the tie-renewal project on this structure the road first used conventional methods and equipment. The force assigned to the work consisted of 24 B&B men and 6 trackmen for removing and replacing the rails and fastenings. In this operation the new ties, which were pre-dapped at the end of the bridge and moved to the working point on a flat car were carried forward by three teams of six men each. These men also loaded the released ties. Average output of this gang was 75 ties installed per day. Since there were 30 men who worked a total of 240 man-hours per day, the ties were installed at the rate of 3.2 man-hours per tie.

The idea of using a roller conveyor was then conceived and put



# cut nearly 75 per cent by conveyor

into effect. J. St. Michel, B&B master of the Montreal Terminals division, was primarily responsible for introducing and adapting the method. The objective was to use the conveyor for moving the new ties from the point of unloading from a flat car to the point of installation, and the old ties to a location where they could be loaded on a flat car.

The roller conveyor was obtained in 10-ft sections which were bolted to two 2-in by 4-in timbers placed longitudinally on the 4-in side. Sufficient of the sections were provided to give a total length of about 200 ft. To prepare the conveyor sections for use they were placed on the near ends of the ties of the adjacent track and tacked in position.

The drawing below shows the position of the conveyor when renewing ties in the westward track. Note that it extends from a car of new ties, through the point of application to another car on which the old ties are being loaded. The procedure is for the new ties to be unloaded with the aid of an air winch and placed on the conveyor. Each tie is pushed manually to the point of installation where it is removed from the conveyor and placed in a position in the track vacated by the removal of an old tie. The latter tie has already been placed on the conveyor for movement to a position to be loaded onto the car for old ties, this operation likewise being performed by an air winch mounted on the car.

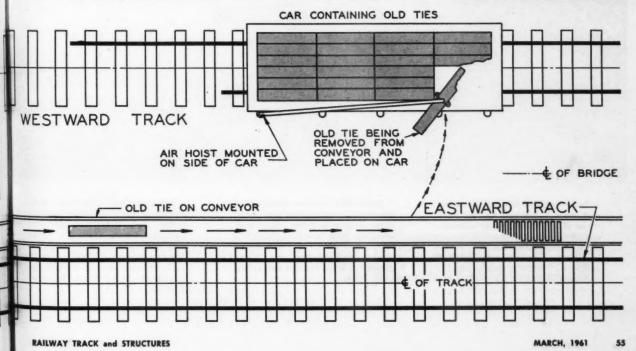
For handling the new and old ties between the conveyor and the track a hand-operated boom is used with a pair of tongs fastened to the outer end. The boom is mounted on a tripod which serves as a fulcrum so that the ties can be lifted and swung in an arc. As the operation moves forward the conveyor sections are picked up and carried ahead.

When the conveyor method was placed in effect the number of B&B men was reduced to 15, with the number of trackmen remaining at 6.

With the conveyor method in use the output of the gang increased to an average of 190 ties per day. Since the gang worked a total of 168 manhours per day it is apparent that the average man-hours per tie was 0.88. On a cost basis this amounted to \$1.50 per tie. The comparable figure when the old method was being used was \$5.50 per tie.

CNR officers are already thinking of ways in which the efficiency of the system can be further increased. "For one thing," says H. J. Fast, coordinator of work study, "the conveyors could be hung on the side of the flatcars descending toward the work point. The new ties could be placed on a conveyor so mounted and would roll towards the working point. The conveyor hung on the car receiving the old ties could be powered, and so bring the released ties to the car. In both cases this would release manpower.

Work schedule when using conveyor
No. of mon Function  1 B&S feromon — general supervision. 1 On new tile car, attaching tiles to tongs.
Operating held, lowering tie to conveyor.  Pushing new ties on conveyor to working point.  Railing specing blacks to ties.
Turning tise (V4 turn), since ties were pleased V4-turn from dapping side on the conveyer.      Attaching old and deteching new tice from triposit also placing ties correctly.
2 Moving ties to and from conveyor with triped.  1 Moving old ties by conveyor to loading car.
1 Attaching old firs to the helpt tengs. 1 Operating helpt to lift ald fire ento car. 2 Stocking ties on the its car. 1 Utility men clearing up heritococks.
Sectionmen breaking reli is front of sto- renewal operation and replacing it be- hind.



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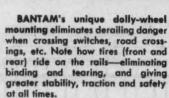
(pat. pend.), mounted on rear out-

rigger of Rail-Roader, works with second threader carried by hoist line to

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in just one operation, Rail-Roader

positions new rail to gauge rapidly





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# What GN gains

# from central

# M/W repair shop

- Specialized repairman
- Faster repairs
- Better work
- Reduced inventory
- Faster parts delivery
- Lower costs

#### Tells benefits of new shop

Some of the specific advantages that are being realized with the Great Northern's new central shop were described by G. L. Zipperian, the road's system supervisor of work equipment. "The time required to make repairs has been greatly reduced,... he said. "For instance, our engine area men can overhaul two of the smaller engines per day and a large engine every three days. Formerly, while the division shops could turn out the smaller engines rather quickly, they couldn't do the work on the larger engines and we had to farm these out. Also, the units could not be cleaned properly and the painting work took a great deal longer.

"Another big advantage," he added, "are the savings we are making in our inventory. We formerly had a large stock of parts and supplies which was really unwieldy, but we have now reduced this to just those items which we currently use.

"It has turned out that the selection of Superior as our shop location is a big advantage," Mr. Zipperian explained. "Here we are fortunate in having many firms which can supply competitive items at reasonable cost. This applies to such items as anti-friction bearings, pillow blocks, sprockets, roller chains, V-belts and other belts we need, oil and hydraulic seals, packing, gaskets, repair parts for our air tools, and bolts and fastenings of all types. These we can get promptly by sending the store department truck to the local supplier and we don't have to stock them in quantity.

"To facilitate the procurement of these and other miscellaneous parts and automotive items," he continued, "we have worked out a plan with our purchasing department whereby we place yearly purchase orders on various manufacturers and the local firms. We make requisitions on these annual orders by telephone or wire and we get the parts the next day. Formerly, the requisition went through the local store-keeper, the general storekeeper and the purchasing department, and it was two or three weeks before we received our parts. The new plan was put into effect on September 1, 1960, and has proved very effective, both in reducing inventory and in expediting our repair work."

Making repairs to equipment economically and efficiently is one of the most perplexing problems connected with the mechanization of M/W work. In the past such repairs on the Great Northern's Lines East were made at four division shops. By replacing these with a single facility at Superior, Wis., the road is realizing some important benefits.

• "Jacks of all trades," is the way W. J. Cruse, engineer maintenance of way, Great Northern, likened the men formerly employed in the road's four division roadway-equipment shops on its Lines East. "Under our new set-up, with one well-equipped shop at Superior, Wis.," he added, "the men are becoming specialists. Even in the short time this shop has been in operation, they are doing better work and doing it faster."

The road had for a number of years been considering the consolidation of the work done in its four Lines East division shops into one centrally located shop. The division shops were located at Superior, Willmar, Minn., Grand Forks, N. D., and Minot, N. D. The Grand Forks location was the one more centrally located with respect to Lines East, but neither it nor any of the three other existing shops were adequate to assume the whole work load. The answer seemed to be a new M/W equipment repair shop at Grand Forks. Accordingly, plans were made to convert a portion of the existing facility at this point at a cost of approximately \$90,000.

However, before an AFE was authorized, the mechanical department consolidated its forces at Superior, Wis., thereby vacating a large brick building, approximately 200 ft by 288 ft in size. This building had

been used as a locomotive erection shop and was fully equipped with the shop machinery required for that purpose.

An inspection of this building was made by G. L. Zipperian, the GN's system supervisor of work equipment. He found that the structure would be more satisfactory for the repair of M/W equipment than would be a new but smaller shop to be constructed at Grand Forks.

The Superior erection shop has an ample paved floor area which is cut into four bays by three lines of columns extending the length of the building. The northerly bay, approximately 80 ft wide, is entered through large rolling doors by 11 service tracks, most of which have inspection pits. The adjacent bay, approximately 40 ft wide, runs down the middle of the building. The width of this bay, plus the fact that it has large doors at each end, permits truck service for the entire length of the building. These two bays, as well as the one 52 ft wide that is next are so served by several overhead traveling cranes that roadway equipment can be loaded, unloaded and moved from one part of the shop to another without difficulty. The southerly bay, approximately 28 ft wide, does not have overhead cranes but it is served by a number of strategically located jib



REPAIRS to M/W roadway equipment on GN's Lines East are made in this shop at Superior, Wis., using specialized machinery.

cranes. It also contains a foreman's office.

Immediately to the south of the shop building, and connected to it by access doors, is a small office, and washroom building. Also nearby, and connected to the shop building by a covered ramp, is a welfare building.

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It was evident that these facilities, presently valued at \$200,000, could be adapted as a repair facility for M/W roadway equipment with a minimum amount of conversion work. In addition, train service in and out of Superior is such that, even though it is located at the extreme eastern point on the railroad, machines and parts could be dispatched with minimum delay to all points on Lines East. Accordingly, it was decided to use these vacated premises as a central repair shop for M/W equipment.

A new working agreement was negotiated with the Brotherhood of Maintenance of Way Employees and the jobs in the new shop at Superior were bulletined. The new shop was placed in operation on June 1, 1960. All of the men formerly working in the four division shops on Lines East who bid on the new jobs were absorbed in the new consolidated work force.

Most of these jobs carry the classification of "equipment maintainer,"

which means they are qualified to work on all phases of equipment repair. Currently the shop force is comprised of a shop supervisor, a clerk, a work foreman, 12 equipment maintainers (including a painter), a welder and 3 helpers.

Supplementing this work force in the winter is the regularly assigned equipment maintainer who accompanies the rail-laying gang. He handles the repair and reconditioning of all machines normally used by the rail gang. The traveling equipment maintainers on the road's Mesabi, Willmar and Dakota divisions also help out in the Superior shop to the extent that they can get away from their regular duties.

It is not the plan to repair all of the roadway machines on Lines East at the new shop at Superior. For a number of years work on the larger machines, such as on-track cranes, crawler cranes, crawler tractors and pile drivers, has been handled by forces of the mechanical department. Work on these units will continue to be handled by the mechanical forces at the Dale Street shop in St. Paul, Minn.

The new shop facilities at Superior are large enough that all work can be carried out under cover, and to allow certain areas to be set aside for handling specific phases of the work. For instance, a concrete-block

wall was constructed in one corner of the main building around a small area used solely for washing and cleaning. Other work areas with benches are reserved specifically for handling the disassembly and assembly of machines, welding of all types, motor-car repairs, repairs to motors, generators and timers, hydraulic system work, repairs to diesel and gasoline engines, tie-renewal equipment and small rail-gang machines, storage of incoming and outgoing units, and painting. The latter includes a paint-spray booth, 16 ft by 30 ft, with large doors at each end.

The work force has been distributed around the shop in accordance with the work areas and also in accordance with each man's ability. It is here that the specialization mentioned by Mr. Cruse comes into the picture. Two men are assigned to the repair of motor cars. Another man has jurisdiction over all of the welding work done in this shop. Three men are assigned to the reconditioning and rebuilding of engines. Another man handles all electrical work as well as repairs to Jacksonbuilt machines, tie saws and other small units. Another handles all work on rail saws, rail drills and power wrenches.

One man is assigned to work on adzing machines, spike pullers, spike (Continued on page 62)

# Fairmont

CUTS COSTS, SPEEDS MAINTENANCE-OF-WAY ON MAJOR PROJECTS ... MINOR REPAIR JOBS

TIE AND RAIL RENEWAL EQUIPMENT



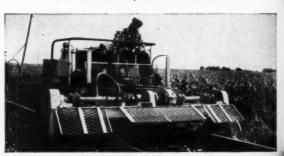
W84 Series B Hydraulic Spike Puller



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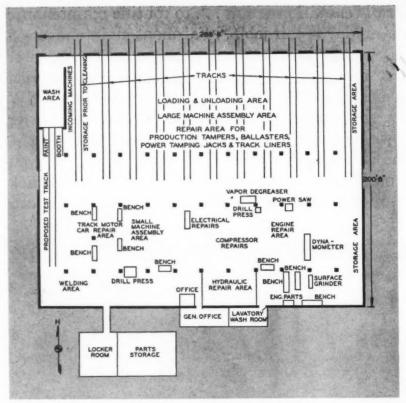
W98 Series A Power Unit



**Bolt Puller** 

FAIRMONT RAILWAY MOTORS, INCORPORATED

Fairmont, Minnesota



WORK AREAS have been allocated for specific types of repairs and each is equipped with the necessary machines and parts that are used in daily routine.

## What GN gains from central shop

(Continued from page 59)



STANDARD YELLOW is painted on each machine before it is loaded for shipment.

drivers and tie inserters. One man handles all painting work. Another man is responsible for the proper functioning of hydraulic systems. He also assists two other men assigned to the disassembly and assembly area. The three helpers unload and load machines, block them on cars, wash and clean all incoming units, and drive a truck when necessary to transport sub-assemblies, such as stators, electrical equipment, engine components and parts which are repaired by outside concerns, from local suppliers or deliver them to the lcl forwarding station for shipment to field men.

Each area is furnished with shop machinery necessary for the work to be done. The Great Northern spent about \$23,000 for the conversion work and in equipping the shop with specialized equipment. The mechanical department released a number of machines which are applicable to equipment repair when it vacated the premises. These

include seven overhead traveling cranes, a Niles-Bement drill press for handling material up to 2 in. in diameter, a Racine hydraulic shearcut hack saw capable of making a 10-in cut, a Model 17000 dynamometer for testing engines up to 300 hp, a small powered hack saw, a 50-ton hydraulic press, several small drill presses, an Acme bolt-threading machine, a 600-amp motor generator welding machine, and a number of double-wheel bench grinders.

#### New machinery acquired

New shop machinery purchased includes the paint-spray booth complete with an exhaust fan, a Van Norman Model 944S cylinder boring bar, a Van Norman Model 561 automatic wet-surface grinder, a Strom-Vulcan Model UV-45 rodstraightening press, two Black & Decker "electric valve shops", a Black & Decker Universal Model 6 valve-tool grinder, a Sun diagnosis machine for testing electric systems, an Allen tester for coils, condensors and magnetos, a Stoody semi-automatic welder using 7/64-in or 3/32-in welding wire, new nonatomizing paint-spraying equipment, and a new vapor degreaser, 40 in by 52 in. in area by 42 in deep.

Parts which are used daily in routine work are kept in each work area. Also, at certain locations in the shop, standard bolts and nuts are stocked in bins where each area can draw out what it needs. In addition, a large part of the former welfare building was converted for the stocking of frequently used parts, and a storekeeper was placed in charge.

A regular procedure has been set up by the road for the care of its roadway equipment on Lines East. In general, all machines regularly used by rail gangs, tie gangs, surfacing gangs and B&B gangs are sent to the Superior shop at the end of the working season. Before shipment, a green tag is affixed by the operator or foreman to each machine to show pertinent information. This includes the point of origin, shop destination, date shipped and work recommended to be done on the unit. The latter is particularly helpful as it often provides information which can only be obtained under actual performance in the field.

(Please turn to page 64)

# RELIANCE RAIL ANCHOR

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Provides Uniform, Maximum Holding Power—for any Track in any Type of Ballast

- \* Quick, easy, low-cost installation.
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ANCHOR BEARS AGAINST TIE PLATE STRONG "CHANNEL" SECTION MAINTAINS A POWERFUL GRIP ON RAIL

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The Reliance Rail Anchor, made by Eaton Manufacturing Company, is a one-piece, heat-treated, high-carbon, high-manganese spring steel anchor which grips the rail firmly, and provides holding power greater than the resistance of the tie in any type of ballast.

Streamlined design requiring less metal results in lower first cost and effects important savings in transportation, storage, and handling. Two-way anchorage can be used with less increase in over-all anchor costs.

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Tests conducted show the resistance of a tie in the ballast to be about 2000 lbs. per rail. Since the Reliance Anchor holds approximately 6500 lbs., it has ample safety factor to cover variations in types and conditions of ballast.

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RAILWAY TRACK and STRUCTURES

MARCH, 1961

6



EQUIPMENT in shop includes this dynamometer. After being overhauled the engines are broken in and tested for leaks by operating them in the dynamometer.

## What GN gains from central shop cont'd

Before being inspected, every unit arriving at the shop is washed and cleaned by a steam-cleaning gun using emulsion-type cleaners. The unit is then moved to the disassembly area by the overhead cranes or other means. The larger machines are set on tracks having inspection pits where the frames can be inspected, weaknesses rewelded or reinforced as necessary, and bolts tightened.

The hydraulic systems, including pumps, rams, relief valves and hydraulic motors, are tested against actual torque output. Until the Schroeder bench-type hydraulic tester now on order is received, the road is using a Schroeder portable tester. All: hydraulic hoses and fittings also are checked under overload. Drive chains are removed, inspected and repaired as required. Electrical units, such as generators and motors, are removed, put through the degreasing device and taken to the electrical work area. Motors and generators are dismantled, new bearings installed, and stator windings reinsulated with Glytol varnish. Vibratory motors are run under power to check bearings for overheat or improper operation.

Engines are operated and the analyzing equipment is used to check their performance. The road equips its larger diesel and gasoline engines with hour-meters which are helpful to determine the class of repairs required. Hour meters also are used on electric tamping equipment

so that the overhaul of its motors and generators can be scheduled. If the meters on machines arriving at the shop indicate only a few hundred more hours of operation before scheduled overhaul is required, each machine is thoroughly checked to assure a full season's work in the field.

The shortness of the working season (6 to 7 months) makes it mandatory for the GN to get full utilization from its equipment and this factor is taken into consideration in the replacement of engines, tamping motors and generators. After overhaul, the engines are placed in the dynamometer machine to be broken in and tested for leaks.

The welding area is equipped for both oxyacetylene and electric-arc welding, as well as for all types of hardfacing. In conjunction with the 600-amp welder, a semi-automatic attachment feeds welding wire off a spool to the point of weld.

One of the most demanding jobs done in this area is the rebuilding and hard-facing of tamper feet. For this work copper molds of the desired shape and size are used. Successive layers of tungsten-carbide particles are placed in these molds and each layer is welded separately by the electric-arc process until the tamper foot has been built up to the desired length.

Each machine is repainted with AREA standard yellow before it leaves the shop. Machine numbers

are stenciled on the units and the GN insignia decals are applied. A color scheme is followed in the painting of all tanks to prevent a new operator from filling them with the wrong fluid. Gas tanks are painted red, diesel fuel tanks green, and lubricating and hydraulic-fluid tanks blue. In addition, the words "Gasoline", "Diesel Oil", and "Hydraulic Fluid" are stenciled on the tanks, and any special instructions, such as "Grease every day", are stenciled on the units.

A Cardex file system is maintained in the office to show a record for each machine. In addition to showing the type of unit, original cost, manufacturer's name, model number, engine serial number, date purchased and where assigned, these cards also include information on the number of hours worked, repairs made, cost of repairs and other pertinent information such as the sizes of rebored cylinders, etc. The road reports that these records have proven extremely valuable in the scheduling of future repairs.

The programming of the shop work is on a trial basis during this first year of operation. After a year's experience, it is felt a better idea of the work involved will be known and a regular schedule can be prepared. In general, however, it is known that the rail-gang equipment must be ready for use by March 1 and the tie-renewal and surfacing equipment by May 1. These are the present shop goals. The mowing machines can be readied for use after the units mentioned are out of the shop.

In summer, the shop will overhaul more of the 1,000 motor cars assigned to Lines East and also the spare and standby equipment units not assigned. It is also intended to have some of the shop men assist the traveling equipment maintainers on the divisions and to fill in for them during vacation periods.

#### Has exceeded expectations

"The shop is designed on the idea of having specialists for each type of repair work so that the men will become very proficient," said Mr. Cruse in commenting on the new shop facility. "It has worked out that way and has far exceeded my expectations. Some day we'll have the same plan on our Lines West".



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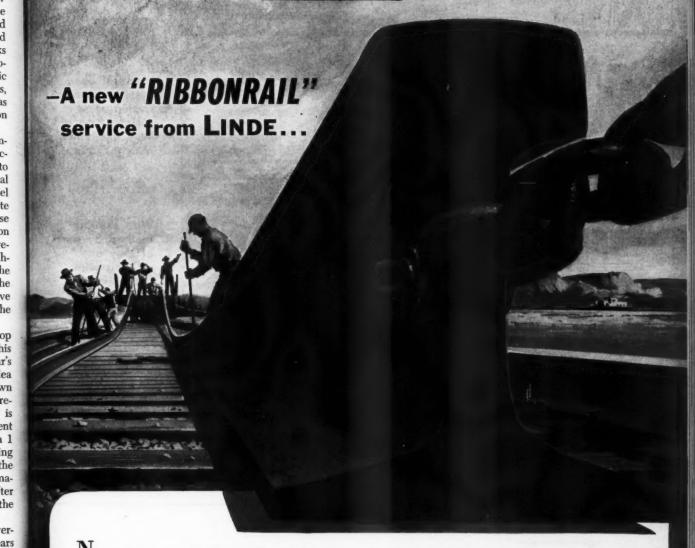
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LINDE fixed rail welding plants are in operation at Harrisburg, Pennsylvania, near the Steelton Mill of Bethlehem Steel Company; and adjacent to the Tennessee Coal and Iron Division of United States Steel, at Birmingham, Alabama. Additional plants will soon follow. These plants will employ the famous "RIBBONRAIL" process of oxy-acetylene pressure welding-recognized for over twenty years as the top quality rail welding process-and used by over forty major railroads. For a single, predictable contract price, you can get rail welded in the lengths you need, and as you need them. Facilities will also accommodate the welding of relayer rail.

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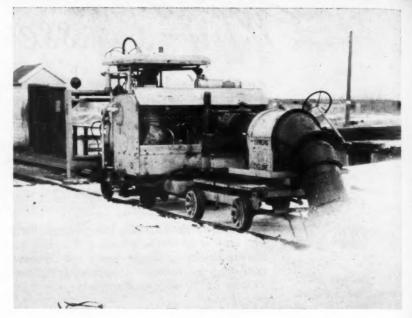
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# Mobile snow blower keeps switch leads clear in terminal



### Produces 100-mph blast that cleans off snow down to frozen ballast

• "The winds pile up the snow on our switch leads and we make our own wind to blow it away," explained R. G. Simmons, general roadmaster on the Milwaukee Road. He was referring to a new machine, dubbed the "Simmons Cyclone," for ridding switch leads of snow.

A pilot model of the machine has been in use in the Chicago area during the present season. In building this unit a steel frame was constructed to support a 35-hp Wisconsin gasoline engine with clutch, a 29-in Hartzell Vaneaxial fan, and a metal duct which reduced the blower opening at the nozzle end.

This assembly was mounted on a small derrick push car after the mast and boom were removed. This carrier was selected because, with the circular nozzle first developed, its swivel mounting would permit the nozzle to be moved from side to side for blowing snow from the full track width. In addition, the nozzle was given a curved shape and had a swivel joint so that, by turning a hand wheel, it could be rotated in a plane perpendicular to the track.

To assure complete elimination of encrusted snow between the switch points and stock rails, two highpressure air pipe lines were mounted on the unit so as to straddle each

rail in front of the push-car carrier.

With a BoltMaster being used as the propelling unit, the pilot model of this snow blower was tried out. It was said to do a fine job of removing snow from between the running rails but too much time was required in getting the snow out from between the switch points and stock rails.

A different type of nozzle was then constructed. This was a "Y" type which provided two 10-in diameter openings, one over each running rail. While this nozzle was more satisfactory than the larger single opening, it still did not achieve complete elimination of snow from between the points and stock rails due to some of this snow drifting backward.

However, experience with the "Y" nozzle showed that the air is expelled from the nozzle at a speed of 100 mph and that it actually blew out snow, loose stones, coal, etc., right down to the frozen ballast. With such results, it is reasoned that the high-pressure pipes which straddle each rail are superfluous.

In one trial, it was found that the snow blower cleaned a switch in 30 sec after 3 in of snow had been deposited on the lead. A switch lead having 20 turnouts was cleaned in 20 min. After 8 in of snow had accumulated on one lead, the snow blower cleaned it in three passes using the Y-type nozzle.

A different type of nozzle has now been built, which provides a continuous opening about 3 in wide and 6 ft long. It is expected that this type will not only clean the area between the running rails and the ballast "eyes" under the rails, but will also blow the snow from between the stock and switch rails and clean off the ends of the ties.

When satisfied that it has the most efficient type of nozzle, the road expects to furnish one unit to each of its five sections in the Chicago area. A motor-car is to be the propelling unit. Each snow blower will be equipped with a self-starter, a Mars yellow warning light and spot lights for illumination.

With the thought of increasing the mobility and utilization of the snow blower, consideration is being given the possibility of mounting it on an off-track machine, such as a truck with a flanged-wheel attachment, or on the boom of a Speed Swing. Such carriers would enable the machine to be moved quickly from one lead to another, and would also permit it to be used for cleaning station platforms and driveways.

# save half\*on bridge protection cost Dearborn's proven NO-OX-ID spr

On more and more railroads, they don't talk about bridge "painting" any more.

They've found that NO-OX-ID bridge spraying, with Dearborn's methods and services saves time and money . . . give one-coat, long-lasting protection.

Developed by Dearborn's research laboratories, NO-OX-ID rust preventive coating provides mechanical <u>and chemical</u> protection . . . contains special wetting and bonding agents . . . requires less surface preparation . . . adheres well even over old paint . . . easily applied.

\*Exact savings, of course, vary.

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Send for Bulletin which gives details of a saving of over \$100,000 on just one NO-OX-ID bridge spraying job.

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RAILWAY TRACK and STRUCTURES

MARCH, 1961

6

# Tamper

# ELECTROMATIC

ELECTROMATIC ...

further reduces your maintenance costs

Electromatic production equalled or bettered by addition of Autojack Attachment.

Precision of lift and uniformity of compaction controlled automatically.

All variations in lift, level and run-out controlled from operator's panel.

Beam "sighting" for utmost precision.

Front buggy self-propelled ahead of tamper.





TAMPER INC.

TAMPER LIMITED,



### Eastern roads hit hard by winter

Storm seems to follow storm this winter along the eastern seaboard, and each one cuts deeply into railroad revenues. It is not only the cash paid out-of-pocket for snow-removal work, which runs into millions each month, but it also is the loss of revenues incurred by decreases in industrial production.

As one railroad spokesman pointed out: "Severe winters hurt more now than they used to. Industry has increasingly moved out into the country where the roads aren't always quickly plowed. In this assembly line age, when a few workers don't show up, plants close down and there goes our testing."

Said one railroad president: "We've had more snow this winter than I can ever remember." New York City had 52 in. in five successive storms. The Pennsylvania estimated that the December storms alone cost it a total of \$5.4 million.



### News briefs in pictures . . .



### Stop signs at secondary crossings

A 75-per cent reduction has been made in the annual number of accidents at 313 railroad crossings of secondary highways in the State of Michigan. The red-andwhite octagonal "stop" signs are installed at crossings protected only with the conventional crossbuck signs.

Two reasons were cited for the improved safety record: (1) All motorists are familiar with the "stop" sign and (2) state law requires that motorists encountering such signs come to a complete stop before proceeding.

The bill permitting installation of these signs was passed by the state legislature three years ago.



### Proposed rapid transit for San Francisco

If present plans are carried out San Francisco's five-county Bay Area Rapid Transit District will have a new 100-mile rail transit system that will operate at speeds up to 85 mph. The system will consist of subways in congested downtown areas and landscaped aerial structures in intermediate sections. Photographs show artist's conception of bi-level subway under Market St. (right) and so-called "aerial transit" facilities in the middle of Hearst Ave., Berkeley (above).



URES

### STRUCTURES PRODUCTS

A special round-up of new and improved machines and other devices designed to help the M/W man in his efforts to reduce maintenance costs

Greater speed claimed for . . .

### **Ballast cleaner**

A MORE POWERFUL motor has been installed on the McWilliams Super Mole shoulder-ballast cleaning machine. The new motor is claimed to permit cleaning speeds of 900 and 1500 ft per hr. The ballast-cleaning mechanism is mounted on an extended-tread tractor which is equipped with a 52-hp diesel engine. All components of the ballast-cleaning unit are hydraulically driven, including propulsion motors, digging and gathering head and main conveyor. Railway Maintenance Corporation, Dept. RTS, Pittsburgh 30, Pa.

Eight air guns for . . .

### **New tamper**

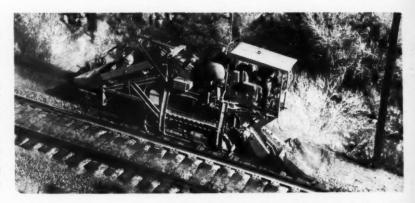
A NEW tamper, known as the Fairmont W110 Series A, has been developed, which is equipped with eight air guns that are hydraulically controlled for tilt and vertical and lateral movement. There are four guns on each side. The machine also is equipped with hydraulic jacks and rail clamps for jack tamping. A hydraulic jack is provided for setoffs and turn-arounds. Fairmont Railway Motors, Inc., Dept. RTS, Fairmont, Minn.

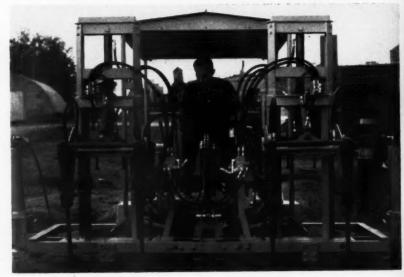
Line Indicator for . . .

### **Switchliners**

DESIGNED FOR USE with the Nordberg Switchliners, the new Midget Line Indicator is claimed to simplify the lining of turnouts in yards and terminals or at locations where spot-lining work is to be performed. When used with the Midget Line Indicator, the Switchliners are powered by a Nordberg hydraulic spike puller.

The Midget Line Indicator, consists of three elements - two clamp assemblies, one equipped with a wire reel, and a combination pointer and track gauge. The new device is used to locate points in the track that are in need of alinement, in the same manner as with the Nordberg Line Indicator. The points then are corrected using the Switchliners. There are four of these

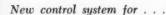




and they are placed in the cribs under the rails at the turnout. Each Switchliner consists of a 41/2-ton hydraulic ram mounted under one end of an inclined plate. The other end is hinge-connected to a base plate.

During lining operations two points, 100 to 150 ft apart, are selected on the line rail. The clamp assemblies then are attached to the rail and the wire stretched between them approximately over the center of the rail.

The pointer assembly is placed between the clamp assemblies with the pointer in contact with the wire. After the wire is properly zeroed in the pointer assembly is rolled along the track to find points needing correction. Nordberg Manufacturing Company, Dept. RTS, Milwaukee, Wis.



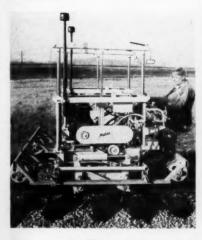
### Super jack-all

THE KERSHAW Model 3GC-A Super Jack-All is available with a new and improved manual tamping control system. This hydraulically controlled and operated





combination jack and tamper is adapted for use with the Kershaw Telescope Track Surfacer or wire-type or other eye-level surfacing device. Optional equipment includes a new automatic electronic cross level. Kershaw Manufacturing Company, Dept. RTS, 2205 West Fairview Are., Montgomery 1, Ala.



Two separate valves for . . .

### **Light tamper**

UNDER-THE-TIE compaction by means of vibration and "squeeze" pressure is retained in the new Matisa light tamper. The unit is self-propelled and is equipped with hydraulically controlled tamping tools which work in parallel simultaneously on both rails. Compaction and depth are controlled by two separate valves which operate on independent hydraulic systems. The manufacturer states that this allows an infinite number of "depth-density" combinations to satisfy a wide range of levelling or raising requirements in different ballast conditions. Matisa Equipment Corporation, Dept. RTS, 1020 West Washington Ace., Chicago Heights, Ill.

New pot-type . . .

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### Switch heater

A NEW kerosene-burning switch heater is available. Known as the Snow Queen, the heater fits between the ties and has a fuel capacity of more than nine quarts, sufficient to give it a theoretical burning time of from 30 to 45 hr, depending on weather conditions. The unit is equipped with a braided wick; the flame is non-adjustable. The fuel tank is 22¼ in long,

# "CALL FOSTER... THEY RENT PILING PLUS"



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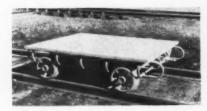
LOS ANGELES 5 • ATLANTA 8 • CLEVELAND 35

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RAILWAY TRACK and STRUCTURES



7¼ in wide and 7½ in high. The heater weighs slightly over 8½ lb when empty. The manufacturer suggests that three heaters per side be used with an 11-ft switch and four per side with a 16-ft 6-in switch. The number of heaters required under switches longer than 16 ft 6 in should be figured according to the same general proportions, it is stated. Bethlehem Steel Company, Dept. RTS, Bethlehem, Pa.



Tubular frame on . . .

### Push car

UNUSUAL strength is said to have been incorporated in the design of a new push car through the use of high-carbon steel tubing. Weighing 500 lb, the new push car is said to carry a load of 4 tons. It has a wood deck which is angle trimmed. It is of standard dimensions and is equipped with 14-in pressed-steel wheels on roller bearings. All wheels are insulated. The Nolan Company, Dept. RTS, Bowerston, Ohio.

New attachments for . . .

### Speed Swing

THREE attachments have been developed as optional equipment for the Model 441 Speed Swing. These include a 12-ft hydraulic backhoe, a 30-in magnet and flanged wheels.

The backhoe is available with two buckets, one 18 in wide for %-cu yd capacity and the other 24 in wide for ½-cu yd capacity. Weighing 1,850 lb, this attachment will dig 12 ft below grade, will raise its load in 6 sec to give 10-ft 8-in clearance below bottom of bucket, and will reach out 13 ft.

The magnet weighs 1,000 lb and will lift 3,000 lb, according to the manufacturer. A 5-kw generator, powered by a 4-cyl gas engine, is mounted on the deck of the Speed Swing.

Two different types of flanged wheels are offered. Both use hydraulic power for



lowering a pair of flanged wheels at the front and rear and for lifting the wheels of the Speed Swing off the ground. However, with one type the machine receives its propulsion by a hydraulic motor acting on one pair of flanged wheels. With the other type, both pairs of flanged wheels are rotated by the tires of the Speed Swing which engage other rubber wheels mounted on the axles of the flanged wheels. Pettibone Mulliken Corporation, Dept. RTS, 4700 Division Street, Chicago 51.



Traverse carrier for . . .

### Power track wrench

THE OPERATING HEAD of the RACO Model C power track wrench can now be moved from one rail to the other without changing the position of the entire machine on the track. This is accomplished by means of the RTM 750 Traverse Carrier which is now available for mounting on the Model C. The carrier is applied to the machine by removing

the outboard axle assembly and mounting the Model C unit on the carrier.

To slide the unit from one rail to the other a locking pin is released and the machine moved to the opposite side on its ball roller mounts. The unit automatically locks in place. Design of the Traverse Carrier provides 360-deg utility of the operating head and permits the engine to operate in the same plane as before. Railroad Accessories Corporation, Dept. RTS, 405 Lexington Ave., New York 17.

Makes lifts up to 10 in . . .

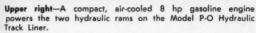
### **New tamper**

EQUIPPED with eight pairs of tamping tools and two jacking cylinders, the Plassermatic HM 300 ST tamper can operate up to 1050 ft per hr as a tamping machine and up to 1500 ft per hr as a jacking machine, depending on tie distance, it is claimed. It is servo-controlled by an electro-hydraulic or pneumatic system. Tamping is accomplished by means of hydraulically driven torsional vibratory tools, which are operated according to the asynchronous system. Two sizes of (Continued on page 78)









Upper left—The double flanged track rollers on the Model P-O-A adjust to any height and weight of rail. Set-off wheels optional.

Lower right—Mounted on this wheelbarrow-type frame, the Model P-O is easily transported or moved into position by one

Lower left—The control valve is mounted on the cylinder of the Model S-P Hydraulic Spot Liner for quick, efficient one-man operation.





# Line More Track Faster With Portable, Power-Driven RTW HYDRAULIC TRACK LINERS

Lightweight, heavy-duty RTW Hydraulic Track Liners make quick work of lining jobs that ordinarily call for big, heavy machines and large crews. Designed by railroad men to give small gangs large crew force, RTW Hydraulic Track Liners feature interchangeable units and high portability—a combination that lines more track per hour with less sweat . . . and at lower cost.

Model P-O Hydraulic Track Liner has a light, rigid and self-contained double flanged roller attachment that adjusts to any height and weight of rail. A compact, air-cooled 8 hp gasoline engine operates the two hydraulic rams that line thru switches and road crossings, powers the attachment for out-of-face linings. Available also mounted on a wheelbarrow-type frame for easy, one-man moving.

Model S-P Hydraulic Spot Liner has a collapsible outrigger and cylinder-carrying detachable dolly for quick portability. The ideal spot liner for small gang operation.

Find out more about lining more track per hour at lower cost with these two powerful, portable RTW Hydraulic Track Liners. Write today for complete details.

Sound color movie on track maintenance available on request.

### TRACK MAINTENANCE MACHINERY

Switch Grinders • Cross Grinders • Surface Grinders
Rail Drills • Cross Cutters • Track Liners
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# NEW TEXACO 904 GREASE PUMPS UNIFORMLY IN ZERO WEATHER OR DESERT HEAT

The consistency of new 904 Grease remains the same over a wide temperature range. This improved pumpability means your curve rail lubricators will always deliver the right amount of grease to give maximum protection to wheels, wheel flanges and rails. What's more, 904 won't spatter—or creep over onto the ball of the rail.

Outstanding adhesiveness and moisture resistance are two more advantages of 904 Grease. Rail is always evenly coated the entire length of the curve. And 904 sticks... won't wash off even in the heaviest rainstorm. These are among the reasons why—

More Texaco 904 Grease is used in curve rail lubricators than any other brand.

For full information, call or write your nearest Texaco Railway Sales Office in New York, Chicago, San Francisco, St. Paul, St. Louis or Atlanta.

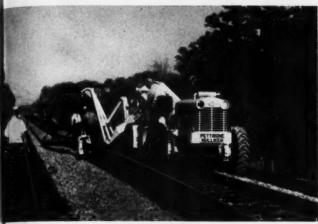
Texaco Inc., Railway Sales Division, 135 East 42nd Street, New York 17, N. Y.

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9' WIDE TRACK CLEANING BUCKET

MODEL 441 Developed and Built for Railroad Maintenance

180° BOOM SWING Does All Jobs!



ROOTS AND LOADS TIES

### 12 FAST CHANGE ATTACHMENTS

- Forks
- 11/4 Cu. Yd. Bucket
- **Tote Hook**
- 18' Boom Extension
- · Fork Tie Baler
- Track Cleaning Bucket
- Back Hoe
- Clamshell
- Back Filler Blade
- Pull Drag Bucket
- · 4 Cu. Yd. Snow Bucket
- Pile Hammer

**Optional Attachment** Flanged Wheels, Hydraulically Controlled

PETTIBONE MULLIKEN CORPORATION



141 W. JACKSON CHICAGO 4, ILL.

80 Years of Service to the Railroad Industry (Continued from page 74)

tools are available-one for loose ballast and one for cemented ballast.

The jacking cylinders, which permit the machine to make lifts up to 10-in, are attached to a crossbeam that is supported by an auxiliary frame. This frame, to which the front axle also is mounted, is pivotly mounted to the machine's frame to prevent the rails from buckling during the jacking operation. The machine is equipped with a motor that develops 50 hp at 3000 rpm. It has a maximum speed of 30 mph and is equipped with hydraulically operated four-wheel brakes. A turntable is provided for setting the machine off the track and for reversing direction. Plasser Railway Maintenance Corporation, Dept. RTS, 700 20th St., Rockford, Ill.



SPIKE is placed in receiver and swung in feeder attachment to a holder beneath the spike hammer.

One-man operation . . .

### Spike driver

USING the SDF spike driver, the manufacturer states an operator can place a spike in a feeder attachment, transmit it to a holder by moving a lever, position it over a tie-plate hole, then start and drive the fastening with an air hammer. The driving assembly is hung on a balanced transverse carriage so spikes can be driven on either side of both running rails. A constant downfeed cylinder is said to make it simple for the operator to view the spike at all times and quickly move the hammer into position.

The transverse carriage and an air compressor are mounted on a metal car frame carried on four small flanged wheels. The compressor is said to feed into an air reservoir of sufficient capacity to maintain operating pressure while driving the spike. A platform provided on the car easily accommodates a keg of spikes. A set-off wheel is attached to one side of the car frame. Tamper, Inc., Dept. RTS, 85 Margaret Street, Plattsburgh, N. Y.



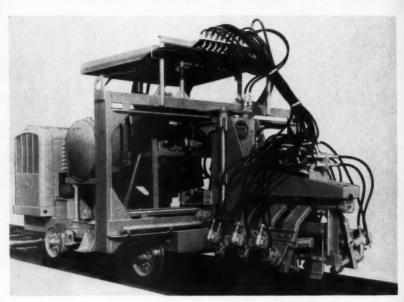
Burro crane with . . .

### Ditcher bucket

UTILIZING the same car body and deck machinery as used on the Model 40 Burro locomotive crane, the manufacturer has added a dipper stick and bucket to develop a ditching machine. A new clutch also was added to provide the crowding and retracting actions required for the dipper stick. Designated the Model 40 Ditcher, this unit is equipped with a ¾-cu yd

bucket which has a digging radius of over 36 ft.

The ditcher is said to have ample power for handling two air-dump cars and a caboose. One 70-mile run with such equipment, plus a flat car, was made at an average speed of 18 mph. The ditcher also furnishes air for the dump cars. It can be equipped with a standard boom to convert the unit to a locomotive crane. Cullen-Friestedt Company, Dept. RTS, 1300 South Kilbourn Ave., Chicago 23.



Six torque wrenches for . . .

### **Bolting machine**

OPERATED by one man, the new RMC BoltMaster is designed to tighten or remove all bolts in a rail joint in a single operation. The machine, which is reported to operate at a rate of up to three joints per minute, consists of six hydraulic torque wrenches which are mounted on a head that traverses on the carriage from one rail to the other to locate over the joint. The six wrenches engage the bolts from both sides of the rail and can be adjusted for different bolt centers. They may all be operated at the same time from a master control or used separately to tighten or remove an individual nut. The machine also can be adapted for use with four-bolt joints.

The manufacturer states that sufficient torque is available to remove frozen nuts

or to twist off bolts if necessary. The sockets are equipped with springs to eject nuts when wrenches are unclamped. The Bolt-Master is hydraulically propelled and uses a hydraulic cylinder to position the bolting head over the rail joint. Bolt tension is controlled by regulation of hydraulic pressure. Railway Maintenance Corporation, Dept. RTS, Pittsburgh 30, Pa.

Hydraulically operated . . .

### Truck-mounted crane

A HYDRAULIC crane has been developed which is designed to fit any truck with a curb weight of 5,500 lb or more, a minimum cab-to-axle dimension of 84 in, and a frame section modulus of 15. Designated Model 200, the truck-mounted crane re-

(Continued on page 95)



Jordan Hydraulic Ditcher-Spreader in operation, with wings lowered.

BETTER PERFORMANCE - A hydraulic control system, combining the achievements of Jordan research with more than sixty years' experience in manufacturing railway equipment, provides unequalled performance. Hydraulic power assures: smooth, positive operation; accurate positioning; faster operation; more work-capacity; safety.

INCREASED VERSATILITY - The Jordan Hydraulic Spreader-Ditcher has year-around usefulness for all types of right-of-way improvement and maintenance operations, including spreading; ditching; building up embankments; ballasting; snow plowing; and moving industrial material such as steel mill slag on dump lines.

COSTS LESS-The Jordan Hydraulic Spreader-Ditcher costs less than other equipment designed for the same purpose because it accomplishes more in a given period of time. Sturdy construction assures continuous, uninterrupted work output. Wide versatility makes possible substantial savings in time and man-power in all types of maintenance operations the year 'round.

Write or call today for free brochure describing the many unique, exclusive features of the Jordan Hydraulic Spreader-Ditcher. We also will be pleased to arrange for a demonstration at your convenience.

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### Preventive vs. corrective maintenance

What is meant by preventive track maintenance versus corrective maintenance? What are the advantages and disadvantages of each? Explain.

### Recover usable materials

BY R. J. HOLLINGSWORTH Engineer – Roadway & Track Baltimore & Ohio Baltimore, Md.

Preventive maintenance involves the renewal of track materials and the performing of track work before failures occur or the track becomes unsafe for scheduled speed. Corrective maintenance must be resorted to when there is a failure of material or the track becomes unsafe.

Where preventive maintenance is properly programmed, it is possible to salvage a high percentage of material which can be reused in tracks of lighter traffic density. Examples include the cropping of rail, reforming of joint bars and the reuse of other accessories removed in a program of this type. Where the maintenance is of a corrective nature, the materials removed have very little salvage value.

Preventive maintenance, when properly carried out, is more economical than corrective maintenance.

The latter is the result of deferred maintenance and often results in excessive overtime from night-time emergency calls or, at its worst, in derailments.

The ideal solution would be to renew rail just before it breaks and ties just before they lose their supporting power. However, the nature of engineering materials is such that renewal programs must be made on the basis of the practical knowledge of experienced track-maintenance men. This can best be done by regular inspections for the purpose of determining the priority of work to be performed.

The most efficient use of modern track machinery can be made by working the track on a cycle maintenance schedule. This results, for instance, in the removal of ties which may have up to five years serviceable life. Such loss of service life can be justified by the added efficiency gained in the use of men and machines.

Preventive maintenance can be

carried to the point where materials are replaced which still are serviceable, resulting in uneconomical overmaintenance. Such is not generally the case in these times of limited maintenance expenditures, but it could well be that one portion of a railroad may be over maintained in respect to other parts of the same road having similar traffic. Close supervision and frequent inspection by experienced maintenance officers is the best way to insure a uniform standard of maintenance which produces the most for the maintenance

### Stops undesired consequences

By H. F. Reilly Chief Engineer Lehigh Valley Bethlehem, Pa.

Preventive maintenance is maintenance which tends to stop undesired things from happening. Corrective maintenance is maintenance to set things right after they have happened. This applies to track as well as any other type of maintenance.

The advantages of preventive track maintenance are many, the primary one being safety. It is more economical and advantageous to operate a detector car over the main

### NEW QUESTIONS to be answered in June

Do you have an answer to any of the questions listed below? If so, send it in. Payment-based upon substance and length-will be made for each published answer. If you wish your name withheld, we'll gladly comply.

**DEADLINE: May 31** 

- 1. What are the advantages in substituting electric switch-lamp lighting for oil lamps? Explain.
- 2. There is a growing trend toward the use of copper pipe by plumbing contractors. Does the cost of this pipe make it feasible for railroads to use? For what purposes? How should the connections to copper fittings and also to existing iron

piping be made? Explain in full.

- 3. To what extent can track operations in yards and terminals be mechanized? What equipment should be regularly assigned to terminal gangs and what should be made available through division equipment pools? Explain.
- 4. When changing out failed bridge ties on open-deck trestles, the new ties may be found to be thicker than the ones replaced. Does this make any appreciable difference? Explain. What, if anything, should be done?
- 5. It is customary to inspect rails

after it is found that a car having a broken wheel tread has nicked the heads of rails. Who should make this inspection? When is such damage serious enough to warrant replacing these rails? Explain. If rail is not replaced, should a rail-grinding train be used?

### Send answers to:

What's the Answer Editor Railway Track & Structures 79 West Monroe Street Chicago 3, Illinois

Do you have a question you'd like to have answered in these columns? If so, please send it in.

### Time and Money Saving Equipment\*



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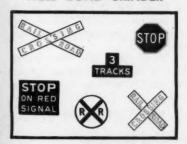
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WELD BOND GRINDER



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RAILWAY TRACK and STRUCTURES

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### What's the answer? (cont'd.)

line and remove defective rails during regular work hours before complete failures occur than it is to perform corrective maintenance by changing a rail after it fails, possibly at punitive time or after the broken rail causes either a derailment or lengthy delays to trains. The same applies to other track appurtenances, particularly switches and frogs, where careful inspection will detect conditions requiring attention before failures occur.

Raising and lining track on a regular cycle, commensurate with traffic and other determining conditions, is an important part of preventive track maintenance. Although there are pros and cons on the predetermined cycling of tie renewals, proper programming for tie replacements is an essential part of preventive maintenance. Rail should be replaced in accordance with requirements based on speed of trains and density of traffic. Installation of continuous welded rail is an excellent preventive maintenance measure.

To insure against unstable track, ballast should be kept clean, battered rail ends should be repaired by welding, rail-head imperfections should be removed by grinding, rail should be kept properly anchored, track bolts should be kept tight, culverts and ditches should be kept cleaned and the growth of weeds and brush should be controlled by chemical growth killers, all of which are a part of preventive track maintenance.

In many cases corrective maintenance is necessary because preventive maintenance was not exercised.

### **Promotes economy**

By J. K. GLOSTER Engineer Maintenance of Way Louisville & Nashville Louisville, Ky.

Preventive track maintenance is keeping the track structure in a specified state of repair by periodic surfacing, timbering, ballasting and other work necessary before the track gets in such condition that it is unsafe. The specified state of repair is governed by the importance of any given section of track, the degree of standard being based on

# NOW THERE IS A TRACK LEVELER THAT CAN KEEP PACE WITH THE MATISA SPEEDTAMPER



### SPOT TAMPING

Dips and isolated low points along track are automatically raised and consolidated to the proper longitudinal and cross level with the *Matisa Track Leveler*, using the existing track as a reference.

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Irregularities are evened out without raising high points with the use of a *Matisa Track Leveler* moving from tie to tie in a continuous operation. The operator tamps to levels automatically adjusted to proper longitudinal and cross levels using existing track as a reference.

### SURFACING

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### What's the answer? (cont'd.)

tonnage handled, speed of operation and class of trains.

Also, preventive maintenance could be the replacement of light sections of rail with heavier sections, as well as the use of bigger tie plates and proper ballast. Such improvements as these tend to increase the period of time between required periodic reworkings of the track. The laying of welded rail could also be considered preventive maintenance as the elimination of joints and other benefits of welded rail should further increase the period of time between periodic preventive maintenance cycles.

On the other hand, laving of heavier rail or welded rail and using bigger tie plates or improved ballast could be considered as corrective maintenance as these would be making the track conform to a new standard of rail weight and larger tie plates such as railroad management might have adopted. In view of this, it is hard to distinguish actually between what would be considered preventive maintenance and what would be considered corrective maintenance.

Preventive maintenance is keeping the track from getting into an unsafe condition and corrective maintenance is putting track back in a safe condition after it has been allowed to become unsafe-to make right or change from wrong to right. I do not believe this is the intent of the question.

Briefly, I would say, preventive maintenance is keeping track in a state of repair justified by the tonnage handled, maintaining the same standard of track that has been adequate to handle business in the past.

Corrective maintenance is the improvement of the track structure by use of improved standards as justified by the business handled, the improved standards enabling the railroad to continue future preventive maintenance in the most economical manner possible.

The advantage of preventive maintenance is that the work can be carried on without increased investment in property accounts and at a minimum cost to operating expenses, where this type of maintenance is adequate for tonnage and type of business handled.

The advantage of corrective maintenance is that future preventive maintenance can be done in a more economical manner, considering tonnage handled, than would be possible if an extraordinarily heavy operating expense would be necessary to keep a heavy tonnage piece of track safe if maintained at a lower standard. The improvement of structure results in a heavier charge to property investment account but at the same time should result in a reduced charge to operating expenses for future maintenance. Preventive maintenance is preferred and should be followed to the extent possible with monies allowed for such work.

### Corrective costs more

By A. D. HENNINGER General Roadmaster Soo Line Minneapolis, Minn.

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The term preventive maintenance will apply to work schedules set up at the proper time and in a manner which will tend to prevent the deterioration of track qualities.

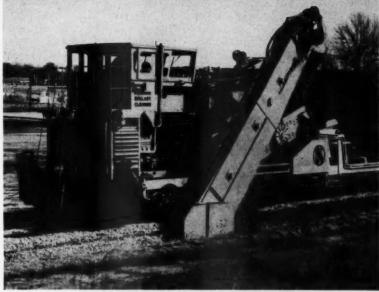
The term corrective track maintenance will apply where normal maintenance has been deferred or where the deterioration of track qualities has reached a point where corrective action must be taken.

It would occur to me that with present-day mechanization there is a greater opportunity than ever before to practice preventive track maintenance. The impact of tonnage and speed will be more severe and the deterioration of surface and line will progress more rapidly where rough surface and line exists than it will where the track is reasonably smooth. The extent of the deterioration to be allowed and yet come under a satisfactory preventive program will be a matter for the maintenance officer to decide.

The following items, which are in line of preference, would represent an important preventive-maintenance program: (1) Roadbed stabilization and drainage; (2) general joint maintenance; and (3) out-of-face ballast programs.

Roadbed stabilization covers a broad area which for the most part can be handled by off-track equipment. Bank widening, releasing of entrapped moisture from the roadbed, ditching, grouting and heave elimination are all important work

# Aeroquip Hose Lines Are Specified for New Kershaw Ballast Cleaner

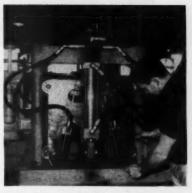


The Kershaw ballast cleaner can be used in skeletonizing and undercutting as well as ballast cleaning operations.

Latest addition to the modern Kershaw line of labor-saving track and maintenance equipment is the new ballast cleaner. This intricate machine is capable of picking up old ballast from the track shoulder, screening the dirt and other foreign materials and returning clean ballast to the track, ready for use again. Aeroquip Hose Lines with Reusable Fittings are used exclusively on the new ballast cleaner, as they are on other Kershaw equipment.

"Aeroquip Hose Lines are the best we can buy for our machines," reports John Holley, Kershaw's Chief Engineer. "One big advantage is that we can make up hose lines of any length, right in our shop. Aeroquip also provides excellent hose line replacement service throughout the country."

Simplify replacement needs for all fluid lines with Aeroquip Hose and Reusable Fittings. Call your Aeroquip Distributor or write us for full details.



A workman installing Aeroquip Hose Lines on a Kershaw Super Jack-All. Hose and fittings are assembled quickly in the Kershaw plant,



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INDUSTRIAL DIVISION, VAN WERT, OHIO - WESTERN DIVISION, BURBANK, CALIFORNIA AEROQUIP (CANADA) LTD., TORONTO 19, ONTARIO AEROQUIP PRODUCTS ARE FULLY PROTECTED BY PATENTS IN U.S.A. AND ABROAD items which most certainly will result in a substantial reduction in maintenance expenses.

Rail-joint maintenance, which constitutes the major portion of the track-section maintenance, can be set up for a mechanized preventive program on a cycle basis. The programming of bolt tightening, anglebar repairs, welding and grinding will substantially retard joint fatigue.

Out-of-face ballasting will go a long way toward the prevention of maintenance. Here, again, we are able to set up a mechanized program to build stable track, eliminate soft spots and provide for better drainage in the track section.

The cost per unit of work done by the corrective method is generally high, in that the nature of the work is nearing the point where it must be corrected promptly. This method of organization requires frequent moves from one job to another. The time spent moving between jobs, the unloading of tools on arrival at each job, and the reloading of the tools at the completion of the work in preparation for the next move, can often involve more time than it takes to do the work. The greatest disadvantage with the corrective method is that the use of work equipment does not fit into this type of an organization efficiently.

In any type of maintenance there is always the possibility of either over-maintaining or under-maintaining the track. The term over-maintenance may appear to be out of line. Nevertheless, there is this possibility and it does occur where track is maintained beyond the required standards necessary to handle the amount of tonnage at the speed required. This condition can lead to a financial waste with little or no benefits received.

### Make dollar comparisons

By R. C. CALDWELL Engineer of Track Texas & Pacific Dallas, Tex.

In a period of declining revenues the problem of maintenance-of-way supervision in selling top management on the idea of allotting sufficient M/W appropriations for performing preventive track maintenance is quite acute. Preventive maintenance can be sold over corrective maintenance if cold hard-dollar comparisons are made.

Which is more economical, to spend a few dollars to grind the roll off a stock rail, or to spend several hundred dollars on the replacement of a switch point? A few minutes spent in grinding a slot between the manganese casting and rails of a railbound manganese frog is certainly cheaper than having a welder spend many hours building up the frog, and much less than having a gang change out the frog. Preventive maintenance by cross grinding the rail ends before they roll over certainly is financially better than rebuilding the broken-out ends in corrective maintenance.

Insulated joints can be sustained much longer if kept tamped up and tightened. If this is put off, the joint insulation and possibly the bars would have to be renewed, probably after first causing a train delay. As a result of that train delay, maybe another carrier or another form of

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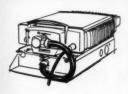
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Just seconds after the car inspector discovers a "cripple" in the New York Central's Toledo Airline Yard, his foreman has a full report by radio. Moments later the repair crew is on its way out, reaching the cripple perhaps 5 to 10 minutes earlier than "before radio" when the car inspector would have had to walk to report the cripple in person.

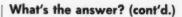
Because a lot of needless walking is eliminated, radio each day easily saves upwards of thirty minutes for each train . . . the essential time needed to get freights rolling on their way on schedule. That's how Motorola "Handie-Talkie" radio pays for itself in the first few months of use.

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transport gets the next carload because it could guarantee a schedule.

Let's look now at track bolts and also at crossing and frog bolts. If kept tight as preventive maintenance, your company has the use of the angle bars, rail ends, frog castings and crossing rails and castings next week, next month and next year.

Observing preventive maintenance everyday on roadway machines by tightening bolts along with routine lubrication work, certainly beats buying sprockets, bearings, shafts and castings as corrective maintenance.

In summation, I see no advantages in corrective maintenance and no disadvantages in preventive track maintenance. If you fight for a force you are positive is the absolute minimum to perform preventive maintenance under your pattern of tonnage, speed and general track conditions, your management will be able to hold to schedules. Also, you will preserve the basic fixed properties for better days which we all hope are ahead for the railroads.

## Underwater masonry repairs

What is the best work procedure for making underwater repairs to masonry substructures? Explain. What equipment is required and how should it be used?

### Several methods

BY H. F. BIRD District Engineer Structures New York Central Syracuse, N. Y.

Before repairs are started, a careful inspection should be made to find out the full extent of the damage. This inspection may require the services of a diver.

Small undermining or scouring can be repaired by packing the void with burlap bags filled with sand and cement mixed in a proportion

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### **Organized Mechanization**

Don't miss this display of equipment featuring NEW MACHINES FOR LINING TURNOUTS!

- TRAKLINER— LINE INDICATOR with SWITCHLINERS
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# AMCHEM, the makers of Weedone, can solve

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### LINE CLEARANCE



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of one to three or four. After the bags are packed into place, the voids can be grouted by inserting a 2-in or 2½-in pipe underneath the pier and forcing in cement grout.

Large voids can be repaired by forming a wall around the opening, consisting of burlap bags filled with sand and cement and forcing concrete grout through pipes inserted through the burlap wall. The pipes can be of different lengths so as to place the grout clear to the bottom of the void.

Another method would be to drive steel sheeting and enclose the void. Then concrete grout can be forced underneath the pier or abutment through tremie pipes. The pipes should be raised as the grout builds up from the bottom.

If the subsoil is rock or covered with rip-rap so steel sheeting cannot be driven, the following method can be used:

(1) Dump track-size ballast around the underscouring up to the top of the footing, working the stone underneath as much as possible.

(2) Place grout pipes approximately six feet apart in the ballast.(3) Place additional ballast up to

top of the opening to be grouted.

(4) Drive steel sheeting in the ballast to enclose the area to be restored. Anchor the steel tops of the sheeting to the pier with bolts.

(5) Additional ballast as required for height may now be added. Cement grout can now be forced into the ballast through the pipes. Pipes can be raised as grout level builds

It may be necessary to have a diver investigate for leaks in the sheeting or under the bottom. These can be stopped with sand bags placed over the openings.

After the grout has reached the top of the ballast, a concrete cap should be poured over the entire area to seal it and prevent scouring out of ballast by high water.

Small areas scoured out underneath a foundation can be repaired by packing with burlap bags filled with sand and cement and dumping rip-rap in front of the structure to protect the bags from being undermined.

The necessary pressure-grout machine can usually be rented from contractors if not available otherwise.

There are other methods that could be used in making repairs to bridge structures, but the ones mentioned above have been found to work quite successfully in the past.

# Backfilling with puddling

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Is there any advantage in using water for puddling when backfilling around bridge and building foundations? Any disadvantages? How much water should be used? What better method can be used?

### **Prefers rolling**

By C. E. WACHTER Bridge & Building Master Canadian National Port Arthur, Ont.

I do not feel that the puddling method has any advantage in our northern climate. No doubt this method has been used, and possibly satisfactorily, on specific jobs in certain areas and climates.

Where the ground is subject to heavy frosts in winter and moisture in summer, I do not believe puddling would be of any advantage. Where backfilling is done with earth it is desirable to compact it with a heavy roller or other heavy weight.

When working around bridge and building foundations, I believe that it is preferable to waterproof the foundation and backfill with gravel or porous material. Where possible, drainage tile should be installed around the bottom of the foundation. It is sometimes necessary to place drainage tile and a pumping system to take care of excessive moisture around piers or abutments.

All building foundations should have drain tile installed around them, leading into a common drain to a sump pump or sewerage drain (where permissible). If drain tiles were placed and the puddling method used the drainage would, no doubt, become silted up before the initial job was complete.

While tile drainage and pumping

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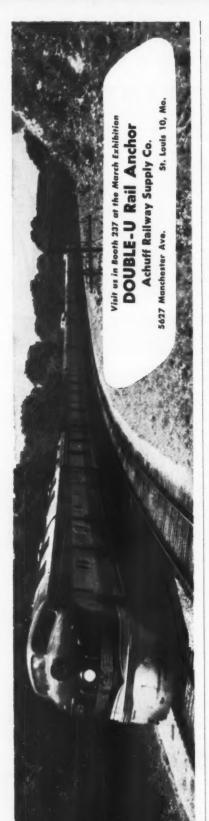




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### What's the answer? (cont'd.)

systems with porous fill may be slightly more costly initially, I am certain they would be far superior to any puddling method in our northern climate.

### **Assures consolidation**

By H. C. WIEMER B & B Supervisor Northern Pacific Duluth, Minn.

Stable foundations govern the life of any structure, be it bridge, building or culvert. The proper compaction of backfill material is necessary to assure a stable foundation. This can readily be accomplished by the puddling method and provides a solid fill with absence of any voids.

The most suitable backfill material should be of a granular nature and should contain a small amount of silt or clay, since this type of material makes a dense, stable fill and still provides good drainage. It also gives better support and reduces erosion.

Vegetation and other objectionable materials should be removed from the fill material to allow the best possible compaction.

The old method of backfilling recommended the use of coarse material in which large voids were created. This encouraged silting, which would tend to hold moisture, thus developing a soft, unstable fill.

Backfilling material should be placed in even layers of from 6 in to 8 in. in depth, and completely and evenly saturated with water to preclude any possibility of unstable pockets. The water should be flooded on instead of using a jet stream to avoid displacing the fill material and causing an uneven saturation.

The advantage of the puddling method of compaction is its positive assurance that the fill is completely devoid of open spaces if the proper type of material is used. This is also a less expensive method and only requires the use of portable pumping equipment when a hydrant is not available.

The disadvantages confronted in the puddling method are lack of drainage, improper fill material and lack of water supply.

(Continued on page 94)

### SAVE EXPENSIVE BRIDGE REPLACEMENTS



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Chances are, some of your wooden bridge structures now scheduled for replacement can be treated for many more years of safe, dependable service. The answer to this budget-saving opportunity is the new Bridge Inspection and Treatment Service developed by Osmose Wood Preserving experts.

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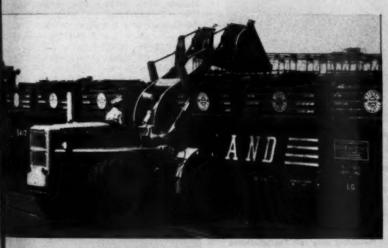
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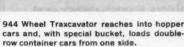
Western Maryland Railway Co. put a 944 Traxcavator on their heavy ore handling operations. The 2 yd., 105 HP Traxcavator loads hopper cars, double-row container cars, and small loaders handling ore inside box cars. Orders are filled faster, handling costs are cut.

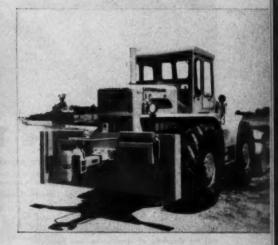
A Traxcavator can probably give you the same advantages in bulk material handling... speed and lower costs. The short time you spend learning about Traxcavator features can lead to a long, pleasantly profitable application. Consider the dependable Cat Diesel Engine that operates on locomotive diesel fuel (optional gasoline engine on two models)... Cat power shift transmission for finger-touch shifting of first and second, forward and reverse... power-boosted steering and dual brakes... exclusive automatic bucket controls that set the digging angle and lift and hold the bucket... wide-open design that puts lift arms safely in front of the operator, lets him get on and off easily, quickly, keeps his efficiency high.

Your Caterpillar Dealer has all the facts about the three wheel-type Traxcavators; the quicker you see him, the quicker you'll know *just how much* your material handling costs can be cut.

Caterpillar Tractor Co., General Offices, Peoria, Ill., U.S.A.







Special coupler attachment, provided by Cat Dealer, equips this 944 Traxcavator for car moving, as well as bulk loading.

See the 944 and other Cat equipment at the NRAA 1961 Exhibition, March 6-9 at McCormick Place, Chicago. CATERPILLAR

Caterpillar, Cat and Transavelor are Registered Tradomarks of Caterpillar Tractor Co.



### What's the answer? (cont'd.)

If the material on which the fill is to be made is composed chiefly of clay or other dense material, and the area to be filled is confined in any way so that moisture is retained, an unstable or soft fill will be the result. Improper fill material placed on a pervious foundation can cause the same poor drainage problem.

The lack of a water supply, of course, precludes any possibility of

using the puddling method. The amount of water needed to insure full compaction in the puddling method is complete saturation.

There are other methods of compaction of backfill material, which consist of hand tamping, power tamping and roller tamping.

Hand tamping is usually confined to small areas and hard-to-get-at places. The use of a 2-in by 4-in board or a 20-lb wood block, 6 in square, is sufficient in size and weight to perform this type of compaction, which is usually of a horizontal nature.

Power tamping equipment allows for more efficient operation, keeping in mind that areas to be compacted should be worked evenly and thoroughly over the entire surface. The use of a small amount of moisture on each succeeding level will produce a fill with greater compactability.

Tamping rollers are used where space permits. Sheep's foot, rubber-tired and other types of rollers are used to very good advantage. Here again it is necessary to supply enough moisture to develop cohesion within the backfill material. Smooth rollers are generally not satisfactory for the compaction of fills.

The good supervisor will determine from field inspection the better method required for making backfill compactions.

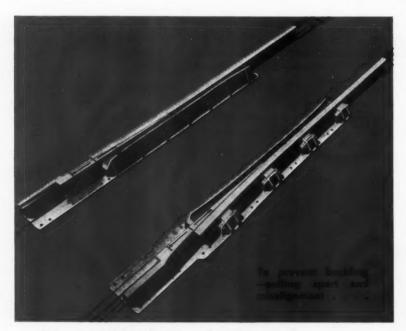


(Continued from page 10)

Rebert G. Huston, 34, who was recently promoted to general track supervisor on the Duluth, Missabe & Iron Range at Two Harbors, Minn. (RT&S, Oct., p. 10), was born at Duluth, Minn., and graduated from the University of Minnesota in 1950 with a Bachelor of Science degree. He entered the service of the DM&IR in 1951 as a brakeman at Proctor, Minn., transferring to the engineering department in 1957 as an instrumentman at Virginia, Minn. Mr. Huston was promoted to senior instrumentman the following year and resident engineer at Virginia in 1960. He was serving in the latter capacity at the time of his recent promotion.

Elvin A. Asher, 40, who was recently promoted to supervisor track on the Louisville & Nashville at Ocean Springs, Miss. ( $RT \psi S$ , Oct., p. 10), was born at Missispipi City, Miss. He entered the service of the L&N in 1940 as a laborer. From October 1941 to November 1945 he was in military service, returning to the L&N as foreman in 1946. Mr. Asher was promoted to assistant track supervisor in 1954, the position he held at the time of his recent promotion.

Kenneth W. DeForest, 51, who was recently promoted to supervisor track on the Grand Trunk Western at Battle Creek, Mich. (RT&S, Oct. p. 10), was born at Bellevue, Mich. He entered the service of the GTW in 1927 as a section laborer at Cassopolis, Mich. Mr. DeForest was promoted to section foreman at Millett, Mich., in 1931, serving also in that capacity at Vicksburg, Mich., Mishawaka and Cassopolis. He was further promoted to assistant supervisor track at Battle Creek in 1952, the position he held at the time of his recent promotion.



### -For Welded Track

on trestles, curves or other critical locations

CONLEY SLIDING JOINTS are built to meet the requirements of modern high-speed trains. The type pictured above is made of two principal members;—manganese for long-wear under extra heavy duty services, and standard rail for simplicity of construction and ease of installation in the field. Provisions for expansion and contraction can be varied in manufacture to meet track conditions. Expansion or

contraction is permitted within the units by simply allowing the wing rail to move forward—or backward. The heavy base (approximately 2,400 pounds each) provides a solid foundation for the sliding wing rail. The installation of these sliding joints will effectively permit track expansion and contraction due to temperature changes and other factors.

Our engineering, manufacturing and installation advisory services are offered gratis and without obligation.



For further information write—wire or phone

CONLEY FROG

& SWITCH CO

P.O. BOX 3188 MEMPHIS 9, TENN.

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(Continued from page 78)



portedly mounts in from 14 to 17 in of space between the truck and cab bed. Weighing 2,400 lb with a 16-ft boom and 2,800 lb with hydraulically extensible 28-ft boom, this new crane is said to lift 3,750 lb at 8 ft, 2,500 lb at 16 ft and 1,250 lb at 28 ft. The boom works in a full circle and from nearly vertical to more than 15 deg below horizontal. Hydraulic outriggers are integral with the crane frame to stabilize the unit and prevent damage to the truck frame or springs.

The crane is available with three optional control systems. Twin controls are standard and a bull panel of manually activated valves is mounted on each side. Remote controls are optional and provide a panel of manually activated valves placed on the truck bed or body at a distance from the crane frame. Dual controls also are optional and include a new solenoid-valve system with electrically activated manual-type valves which permit both straight solenoid operation, through a 35-ft cable and hand-switch box, or hand control with feathering action.

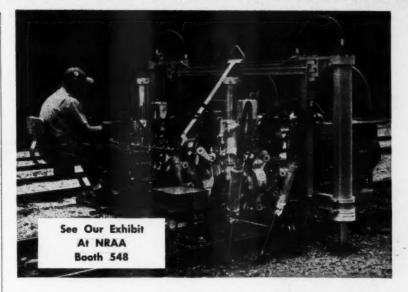
The hydraulic pump of this crane normally derives its power from the truck transmission through a power take-off. However, adequate power also can be achieved by a 15-hp auxiliary electric mor or a 15-hp engine providing 2,400 rpm with a 3-to-1 reduction. Teale & Co., Dept. RTS, P. O. Box 605, Omaha, Nebr.



Improvements made to . . .

### Snow plow

A NUMBER of improvements have been made to the Jordan Model WP-100 high-speed, wedge-type snow plow. A number of changes inside the car body were made for operator comfort, safety and efficiency. They include a coating consisting of a mastic-type sound deadener, a 3-in thickness of fiber-glass insulation and a lining of \( \frac{1}{2} \)-in plywood. The floor is finished in



## Tamp 300 feet per hour with 35% less capital investment



SINGLE-RAIL SPOT TAMPER



UNIT TAMPER



RAIL SAW



Here's a production tamper that out-tamps or equals the normal continuous tamping output of other machines that cost from one-and-a-half to four-times its price. Racine "Oct-a-gun" also jacks the track as it tamps, eliminating the need, time and manpower for a separate track jack.

"Oct-a-gun" tamps one or both ends of tie... stabilizes ballast at honest rate of 180 ties-per-hour. It tamps uniformly at every tie with hydraulic-powered, 1160 high-impact tamping blows per minute. One operator works twin 4-tool heads, tamping as solidly as desired... from directly below the rail base to 18" either side of rails. Integral hydraulic jacks with positive rail-grip and powerful, big-diameter cylinders provide smooth raise with clear sighting. Fast-starting hydraulic motors propel the machine from tie to tie... and move it to-and-from job or switch at 12 mph. Machine is powered by two 18 hp gas engines, can be removed from tracks in three minutes on standard prepared set-off.

Clip and mail the coupon for location where you can see "Oct-a-gun" tamper at work... or check for literature on any Racine machine.

RACINE
RR-106 RAGINE HYDRAULICS & MACHINERY, INC. DEPT. C251, RAGINE, WIS. Send literature on: "Oct-a-gun" tamper   Anchor applicator   Spot tamper   Unit tamper   Rail saw   Rail drill
Where can I see
Name Title
RR or Co
Address

City..... State.....

### Products (cont'd)

%-in plywood with a vinyl plastic covering. The entire front windshield is equipped with a hot-air-blast-type defroster and locomotive-style windshield wipers. The operator's chairs have all-cushion, bucket-type seats and can be adjusted to either a sit-down or stand-up position. The seats are equipped with safety belts. In addition, neoprene sealing pads have been added to the openings in the floor and side walls through which pass the operating cylinder rods that control the flanger plow and snow spreader wings. They are stated to make the openings weathertight.

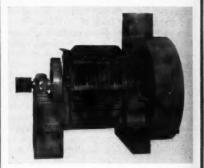
The snow spreader wings have been redesigned for greater rigidity and efficiency. They are of welded sandwich-type construction consisting of a face plate and a rear plate that are reinforced internally by steel channels. The wings are equipped with two diagonally placed curved has projecting out from the face of the wings. The fins have a knife-like edge to provide minimum resistance when lifting snow. The flanger plows have been rearranged so that a flanger plow having a 90-deg angle is so positioned that the material being flanged is disposed of even when the snow-spreader wings are closed. O. F. Jordan Company, Dept. RTS, East Chicago, Ind.



Crib cleaning device for . . .

### Tie bed cleaner

HYDRAULICALLY powered from the parent machine, an attachment has been made available for the Kershaw Tie Bed Cleaner, which is designed to extrude crib ballast from beneath the rails and deposit it beyond the end of the ties. The attachment is equipped with flipper-type pusher blades which permit retraction without dragging ballast back into the crib. It can be used in conjunction with the Kershaw Two-Wheel Kribber, Model 5A-D. Kershaw Manufacturing Company, Dept. RTS, 2205 West Fairview Ave., Montgomery 1, Ala.



Grind up old ties with . . .

### New machine

FULL-LENGTH or short crossties can be ground up and the chips blown on the ground by means of a new machine known as the Blo-Hog. The unit is mounted on a small car with diesel-engine drive and includes an elevating conveyor for feeding ties into the grinding mechanism and a blower discharge pipe which is equipped with an elbow for directing the chips to either side of the right of way. The manufacturer states that no attendent is required at the machine and that spikes in the ties do almost no damage to the unit. Jacksonville Blow Pipe Company, Dept. RTS, Jacksonville, Fla.

No priming required for . . .

### New sludge pump

DESIGNED to handle liquids containing up to 15 per cent solids, the new CP-71 lightweight sludge pump can eject 40 gpm at a 200-ft head and 100 gpm at a 50-ft head, it is claimed. The unit is 17 lb



### SUBURBAN PROPANE SWITCH HEATING INSTALLATION

Suburban Propane Gas "flame-sweeps" switches clear of ice and snow. That's why you'll find Suburban Propane Gas keeping switches clear on almost every major railroad in the Northeast.

Suburban Propane industrial representatives working in close cooperation with railroad officials have helped to develop the most efficient and dependable switch heating programs possible. Their "know-how" on all phases of propane supply and utilization is available to you, too, without obligation.

Next time you need propane for switch heating, for motor fuel for fork-lift trucks, or for any other application, call the Suburban Propane industrial representative serving your area. There are more than 90 Suburban Propane Gas Service centers in 18 eastern and central states.

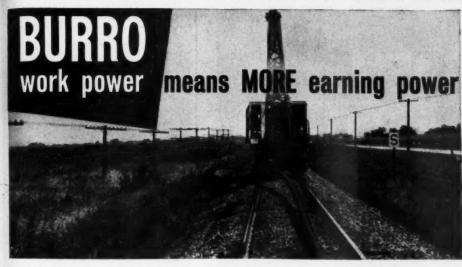
If you prefer, write to Dept. RWTS 361

### SUBURBAN PROPANE GAS SERVICE

General Offices

Whippany, N. J.

Over Thirty Years of Dependable Service



Burro Crane, with threader suspended from boom of the crane to guide the rail, shifting new welded rail from the shoulder to the center of track.

On the line, in the yards, or Stores Department—a Burro does the job fast, efficiently, and profitably. Fast travel speeds and heavy draw bar pull enable the Burro to go to the job in a hurry—and even haul its own cars with it. Once on the job, the Burro wastes no time getting the job done with hook, magnet, tongs, bucket or dragline.

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a 50-ft 17 lb

### CULLEN-FRIESTEDT CO.

1301 S. Kilbourn Ave. • Chicago 23, Illinois

Represented in Canada by:

SYLVESTER STEEL PRODUCTS CO., LTD. LINDSAY, ONTARIO

Model 40 Burro Locomotive Crane Ditcher with long digging radius to permit starting ditch ample distance from track. This Model 40 Burro not only digs ditch and loads both near and far ends of cars, but also hauls its own cars with its own power.



Write for Bulletins and more information about Burro Cranes

Post-tensioned CONCRETE TIES

We cordially invite you to visit our display of Post-tensioned Concrete Railroad Ties at our Booth 163 of the N.R.A.A. Exhibit.

### U. S. CROSSTIE, INC.

8604 West Schlinger Avenue MILWAUKEE 14, WISCONSIN GReenfield 6-9800

# BALLAST

BEFORE

AFTER





RAND TOWER Minneapolis 2, Minn.

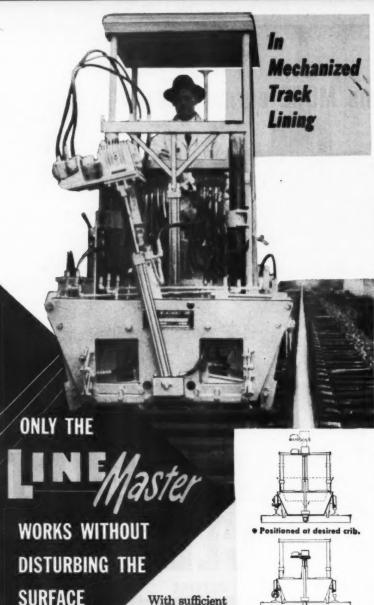
CONDITIONING CORP.

Metropolitan Bank Bldg. Washington 5, D. C.

RAILWAY TRACK and STRUCTURES

MARCH, 1961

97



RBING THE

With sufficient lining speed to keep pace with the fastest mechanized gang, LineMaster exerts a horizontal push at base of the rail. It does not use

... and there is no tendency to raise the rail and disturb the surface.

May we discuss LineMaster performance with you?

weight of the rail for an anchor



 Track shifted by hydraulic pressure.

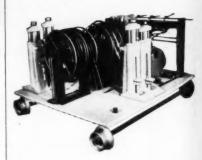
Dailway Maintenance Corporation

BOX 1888 PITTSBURGH 30, PA.

### Products (cont'd)



lighter than its predecessor and has modiaphragms, stuffing boxes, rotors, impellers or pistons. It operates on the ejector system and from an 85-cfm air compressor. Liquid is sucked into the pump by air passing through a venturi. When the pump is full air pressure forces the liquid out. The cycle then is repeated automatically. The manufacturer states that the CP-71 needs no priming and can operate with or without a suction hose. Chicago Pneumatic Tool Company, Dept. RTS, 6 East 44th St., New York 17.



Hydraulic operation for . . .

### Track jacks

FOUR 15-TON hydraulically powered track jacks are available as a unit for making lifts up to 12 in. The manufacturer states that the jacks can be used for heavy track jobs, such as lifting and leveling turnouts and retarders. Each jack is connected to a gasoline-powered hydraulic pump by means of 20-ft sections of hose which can be coiled on reels when the jacks are not in use. Motor and reels are mounted on a flanged-wheel cart which carries the jacks from one location to another. The equipment is arranged so that two jacks operate from the front of the cart and two from the rear. This arrangement provides a total reach for the jacks of 40 ft. Each jack is connected to a fourway valve which can be linked in any combination to the other valves so that two, three or four jacks will lift simultaneously. Each jack also can be raised independently of the others. Templeton, Kenly & Co., Dept. RTS, Gardner Road, Broadview, Ill.



For switch lamps . . .

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### **Battery box**

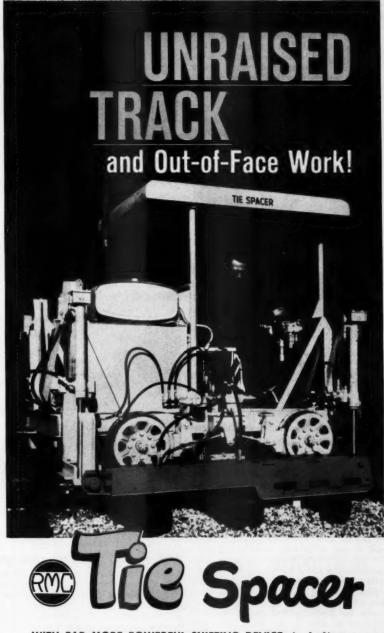
INTENDED especially for use with switch-lamp lighting batteries is a new battery box molded from triple-ply fiberglass. Weighing 10 lb, the box is said to be non-corrosive and to be built for durability. The cover is 11/2 times thicker than the box itself and is shaped with a convex top surface for extra strength. All hardware and fittings are made of brass. Cable fittings in various sizes are available to accommodate battery cable ranging from 0.312 in O.D. to 0.562 in O.D. All types of air-polarized batteries now used for switch-lamp lighting may be housed in this box. The Primary Battery Division, Thomas A. Edison Industries, Dept. RTS, Bloomfield, N. J.



For granular material . . .

### Herbicide spreader

A NEW AND IMPROVED spreader is available that is designed for easy, accurate and economical application of granular industrial and agricultural weed killers. The manufacturer claims that the unit, known as the U. S. Borax Model B herbicide spreader, will hold enough ma-



WITH FAR MORE POWERFUL SHIFTING DEVICE, including an improved hydraulic clamp assuring more positive anchor while shifting ties... Tie Spacer is more flexible in service. It can be used to advantage anywhere in a surfacing gang... or it will work ahead of the gang moving unraised ties. Fast, rigidly-made, operated by one man. • May we demonstrate how R.M.C. Tie Spacers will reduce costs for your railroad?



terial so that one filling will cover up to 5,000 sq ft, applied at a rate of 1,000 sq ft per min. The Model B consists of an unbreakable, corrosion-proof plastic body with an adjustable web shoulder strap. It is equipped with lifetime-lubricated gears that are enclosed in a dust-proof gear box. United States Borax & Chemical Co., Dept. RTS, 630 Shatto Place, Los Angeles 5, Calif.



TIE PLATES can be bonded to ties using an epoxy base adhesive known as Bondarc TP. Photo shows a jig used to set plates to proper aggs.

Bond plates to ties with . . .

### Adhesive

A TECHNIQUE has been developed by the Rail Joint Company, working in conjunction with the Armstrong Cork Company, for bonding tie plates to crossties. It consists of bonding the plates to the ties at the treating plant prior to preservative treatment. The process utilizes an epoxybase adhesive known as Bondarc TP. The adhesive is placed on the prepared surface of the tie after which the plates, cleaned and heated to provide rapid curing, are set on the tie to the proper gage. The manufacturer states that the bond between plates and ties is impervious to the preservative treatment but that the bond does not affect penetration of the preservative under the tie plate. Rail Joint Company, Division of Poor & Co., Dept. RTS, 50 Church St., New York 7.

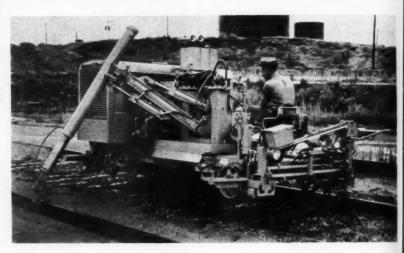
For ballast regulator . . .

### Snow switch cleaner

A NEW attachment is available for the Kershaw heavy-duty Ballast Regulator. Known as the Model 2FBC-A Snow Switch Cleaner attachment, it is designed to remove snow from switches by sweeping the snow, with rubber covered steel cable brushes, into an auger-type snow blower. The blower then discharges the snow to either side of the track or into a low car or dump truck. The photograph shows the attachment being demonstrated on the Canadian Pacific.



The unit is mechanically driven and is powered by a gasoline engine, but is raised and lowered hydraulically. It is equipped with shear-type pins for protection. The unit is provided with a steel deflector assembly to replace the snow blower so that it can be used in ballast-sweeping operations. Kershaw Manufacturing Company, Dept. RTS, 2205 West Fairview Ave., Montgomery 1, Ala.



Replacements made with . . .

### Rail changer

TRANSPOSING rail on curves, relaying rail in yard tracks, building industrial tracks, replacing defective rails behind a detector car, and the changing out of frogs and switches are a few of the maintenance operations which a manufacturer claims can be accomplished with a new machine called "Rail Changer." This unit is said to be able to tow a load of spare rails on trailers for use in making replacements of defective rails found by the de-

tector car. With the proper attachments, it can be used for cutting brush, cropping rail and maintaining bolt tension in joints.

The manufacturer reports that the Rail Changer has a hydraulic drive through a two-speed reversing transmission, a hydraulic cantilever boom with telescopic extension, four-wheel air brakes, hydraulic jacks, air-operated rail dogs and cassteel wheels. It is equipped with a 125-cfm reciprocating-type compressor or it can be equipped with an Ingersoll-Rand 250-cfm rotary compressor. Fred W. Holstein Co., Dept. RTS, Hopatcong, N. J.

Cribs 4 in below ties . . .

### Two-wheel cribber

EQUIPPED with two mechanically driven 40-in cribbing wheels, the Kershaw Mode 5AD self-propelled Kribber is designed to extrude ballast from the inside and outside of one rail to a depth of 4 in beneath the ties. The machine is powered by a gasoline engine and is equipped with two-wheel vacuum-operated brakes. It is designed to meet standard clearances in



the clear position. Kershaw Manufacturing Company, Dept. RTS, 2205 West Fairview Ave., Montgomery 1, Ala.



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### **Bumping posts**

TWO new bumping posts featuring ease of installation have been made available. One is a heavy-duty post (shown above) which contacts three crossties and has heavy side rods which tie the compression and tension anchorage members together. It uses tubular compression members for increasing strength while decreasing weight. Weighing 1,000 lb, this post is designed to move on the rails under heavy impact with the shock absorbed by the ballast.

The other, designated the "Econo" bumping post, is a low-cost post which includes many of the features of the heavy-duty post. The Nolan Company, Dept. RTS, Bowerston, Ohio.



New transmission for . . .

### **Tractor-scrapers**

TWO NEW Caterpillar wheeled tractorscrapers are available which are each
equipped with a new four-valve-in-head
diesel engine and torque divider power
shift transmission. The new machines are
the four-wheel 630 Series A and the twowheel 631 Series A tractor-scrapers. The
new engine has a maximum rating of
420 hp and a flywheel rating of 335 hp.
Top speed of the 630A is 41 mph; top
speed of the 631A is 31 mph. Features
claimed for the new engine include individual porting of intake and exhaust
valves for improved breathing characteristics and cooling of intake air for improving engine performance. Scrapers are of
(Continued on page 108)

RAILROAD
MATERIALS
HANDLING
TIME & COST!

### TEALE "200" CRANE

### Fully-Hydraulic . . . Truck-Mounted

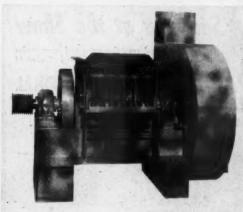
High performance "200" uses less bed space, weighs less . . . but lifts 3,750 lbs. (at 8'), 2,500 lbs. (at 16'), and 1,250 lbs. with hydraulic boom extended 28' out! Fits any truck 5,500 lbs. and up, in 14-17-inches of bed space! Available with fibre-glass basket and personnel platform with platform controls!

For complete information & FREE literature, write



P.O.Box 605 Omaha, Nebraska

LARGER CAPACITY CRANES AVAILABLE

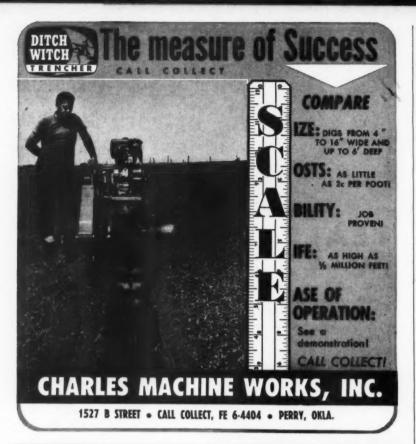


OLD
CROSSTIES
DISPOSED OF
EASILY

This Marvelous Montgomery BLO-HOG grinds crossties-full length or short pieces—and blows the chips on the ground to rot with no fire hazard. Spikes in cross ties do almost no damage. No attendant is needed; unit is mounted on a small car with Diesel Engine Drive. Crossties are placed on elevating conveyor which carries them up and feeds them into the BLO-HOG which grinds them into small chips and a swiveled elbow on the blower discharge directs them to either side of the right of way. Very low maintenance costs. Write, wire or phone for complete information:

### JACKSONVILLE BLOW PIPE COMPANY

P.O. Box 3687, Jacksonville, Florida, Elgin 5-5671





### **Association News**

### Mississippi Valley Maintenance of Way Club

The next meeting of the club will be held on March 13 at the usual location, the Ambassador-Kingsway Hotel, 108 N. Kingshighway, St. Louis, Mo. The program will consist of a moving picture and commentary describing the New York Central's new electronic hump yard at Avon, Ind. The social hour will commence at 5:30 pm, with dinner starting at 6:30.

### Northwest Maintenance of Way Club

The principal speaker at the March meeting of the club, to be held on the 23rd, will be B. R. Meyers, vice president and chief engineer of the Chicago & North Western. The meeting will be held at Coleman's Cafe, 2239 Ford Parkway, St. Paul, Minn., with dinner being served at 6:30 pm, preceded by the usual social hour.

### Maintenance of Way Club of Chicago

At the March meeting of the club, to be held at the Midland Hotel on March 27, the subject will be "Concrete ties—their status in the United States today." The speaker will be Leo P. Nicholson, railway representative of the Portland Coment Association. His address, to be illustrated by moving pictures, will trace the development of concrete ties in this country and will describe the various types now available. As usual, there will be a social hour beginning at 5:30 pm, with dinner starting at 6:30.

### American Wood Preservers' Association

The 1961 annual meeting of the AWPA will be held at the Banff Springs hotel, Banff, Alta., May 29-June 1. Business sessions will start on Tuesday, May 30. A special train has been arranged, leaving Minneapolis Saturday evening, May 27. This train will be routed via Winnipeg and will arrive at Banff Monday morning, May 29.

### **Bridge & Building Association**

A meeting of the Executive Committee of the B&B Association will be held on Monday, March 6, at McCormick Place, Chicago, starting at 9 am. This is the location of the AREA annual meeting and the NRAA exhibit. The group will be guests of the Association of Track & Structure Suppliers at lunch.

### Roadmasters' Association

The Executive Committee of this association will hold a meeting at McCormick Place, Chicago, on the morning of March 6, the first day of the product exhibition to be staged there by the National Railway Appliances Association. The Executive Committee meeting, under the direction of President Earl F. Snyder, will take place in meeting room No. 5,

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New fast acting penetrant and rust solvent . . . saves time, trouble, money and tempers. Available in pressurized cans or regular pints and gallons.



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### Association news (cont'd)

and will be followed by a luncheon in the same room at which the group will be the guests of the Association of Track and Structure Suppliers.

On the afternoon of the same day, and also all day, March 7, the same room will be available for the use of special subjects committees of the association.

### **Association of Track** and Structure Suppliers

Ray T. Johnson, Jr., president of the AT&SS, has called a meeting of the board of directors to be held on Friday, March 10, at the Union League Club, Chicago. The meeting will start at 10 am.

### Supply Trade News

AMERICAN BRAKE SHOE COMPANY - Raymond A. Frick, vice president of the Railroad Products Division, has been promoted to executive vice president of the division. In his new position, Mr. Frick will, as before, be in charge of manufacturing for the division and will assist Stephen S. Conway, president of the division.

Mr. Frick graduated from the University of Pennsylvania in 1941 with a Bachelor's degree in economics and joined ABS the following year as a special apprentice in one of the company's railroad supply divisions. He was appointed vice president of the Railroad Products Divi-

sion in 1957.

ARMSTRONG CORK COMPANY - A. J. Slosser, formerly manager of industrial adhesive sales, has been promoted to manager of the newly created Railroad Adhesive Sales Department.

ATHEY PRODUCTS CORPORATION - Keith V. Gilbert has been appointed assistant to the sales manager.

CHIPMAN CHEMICAL COMPANY - John T. Degman has been appointed manager of railroad sales of the Chicago district of this company. Duncan McCallum, general manager of the company's Chicago office, has also announced the appointment of Humpton A. Lyness as district sales manager, with headquarters at Kansas City. In his new capacity, Mr. Lyness will serve Nebraska, Kansas, Iowa and Missouri.

Mr. Degman joined the Chipman Chemical Company two years ago as railroad sales representative. Formerly he was special railroad representative for Oakite Products, Inc., and had previously been with the Rail Joint Company, serving as assistant to the vice president.

Prior to joining the Chipman Chemical Company in 1957, Mr. Lyness was associated with Cities Service Oil Company. Before that he worked in various departments of Wilson and Company.

COMPACT RAIL CAR COMPANY - This company has been formed to manufacture and sell a ballast car 10.5 ft in length. Address is P. O. Box 4516, Chicago 80. Ill. Frank G. Novelli is president.

DEARBORN CHEMICAL COMPANY - Samuel C. Johnson, vice president and a director of this company, has retired after 30 years of service in the railway supply field. Mr. Johnson will, however, continue an active role in the field through his positions as executive secretary of the Association of Track and Structure Suppliers, and assistant secretary and director of exhibits for the National Railway Appliances Association. He has been functioning in the latter capacity in connection with the NRAA exhibit that opens at Mc-Cormick Place on March 6. Mr. Johnson joined Dearborn Chemical Company in 1930 and was subsequently assigned to its railroad department where he was advanced successively through the positions of assistant vice president, vice president of the department's eastern division, and, in 1955, vice president of the entire department. He was elected a director of the company in 1953.

MOBILWELD, INC. - The following officers have been elected: Max K. Ruppert, chairman of the board; Earle F. Cox, president; C. Richard Sherer, vice president; A. J. Frystak, secretary and R. E. Mitchell, treasurer.

SCREW & BOLT CORPORATION OF AMERI-CA - Horvey S. Monheim and George H. Hodopp have been appointed assistants to the chairman, according to an announcement by Louis Berkman, board chairman. Mr. Berkman also announced the appointment of Irving J. Berkman as executive vice president in charge of sales.

TAMPER, INC. - R. A. Weber has been appointed district manager for this company, with headquarters at Pittsburgh.

(More on page 106)



Raymond A. Frick American Brake Shoe



John T. Degman Chipman Chemical



**Hampton A. Lyness** Chipman Chemical



Samuel C. Johnson Dearborn Chemical

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Our contract arrangement for these services obviates the necessity for any capital investment on the part of the Railroads and protects them as to cost for this type of work.

We have been servicing the Railroads continuously for over 45 years and have yet to lose a customer.

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Safely handles loads to 2000 lbs. All tubular high-carbon steel construction for trouble-free service. Car breaks conveniently in the center into two sections for easy handling and transportation. Each section can be used as a truck seat.

The deck is heavy mesh-expanded steel. Removable handle can be used at either end. Ball bearing cast steel wheels.

Platform Size 48" x 45" Height Above Rail 8" Weight 140 lbs. complete

Write for complete Tool and Supply Car illustrated literature and prices FREE complete catalog shows entire NOLAN railway supply line.

THE NOLAN CO., 166 Pennsylvania St., Bowerston, Ohio

ROTARY SNOW PLOW, powered by a 37-hp Wisconsin, blows snow at least 40 feet from track. Attachment is made by Kershaw Mfg. Co., Inc., Montgomery, Ala., for use with their Ballast Regulator.



BROOM ATTACHMENT, powered by the same model Wisconsin Engine, extends the utility of the Kershaw Ballast Regulator for final regulating and dressing of track.

Lower First Cost: You can replace high-priced sin-gle-purpose machines at a fraction of the cost with Wisconsin-powered attachments for seasonal jobs. You reduce inventory and storage costs. Lighter, more compact engines make attachments easy to handle. And you get year-around use out of basic rolling stock that would otherwise be idle in the off-season.

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For more information, get Bulletin S-254 covering all Wisconsin Engines, 3 to 56 hp. Write Dept R-21.



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RAILWAY TRACK and STRUCTURES

**MARCH, 1961** 

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### Supply trade news (cont'd)







. P. Underwoo Matisa

R. W. Carpente True Temper

J. H. Liebenthal Western Industries

MATISA EQUIPMENT CORPORATION — Robert P. Underwood, vice president and general manager, has been elected president and general manager of Matisa Equipment Corporation and Matisa Railweld, Inc., according to an announcement by Gilbert Kerlin, chairman of the board. As before, Mr. Underwood will maintain headquarters at the firm's main offices in Chicago Heights, Ill. He joined Matisa in 1957 as general sales manager and was promoted to vice president and general manager the following year.

TRUE TEMPER CORPORATION — Robert W. Carpenter has been appointed Southeast sales manager for the Railway Appliance Division, with headquarters at Richmond, Va., succeeding C. C. Connolly who will continue to handle sales to certain railroads in the southeast section of the United States. Mr. Carpenter recently was associated with Bird & Son.

WESTERN INDUSTRIES, INC. — This company has announced the purchase of the Q and C Company, New York. The acquisition will add approximately \$1,000,000 to the company's annual sales volume, according to George L. Hudson, board chairman of Western Industries. Q and C will be operated as a division of Western Railroad Supply Company, a subsidiary of Western Industries, and will be located at Western Industries' Chicago headquarters, 2742 W. 36th Place. W. J. Joy has been appointed general sales manager and J. H. Liebenthel will be chief engineer of the company's new railroad equipment division.

### Obituary



H. H. Talboys Nordberg

H. H. Talboys, vice president of the Railway Equipment Division, Nordberg Manufacturing Company, died on February 5, following a brief illness. Mr. Talboys, who was 79, had served with Nordberg since 1924. It was under his direction that the Railway Equipment Division was established. He became vice president of the division in 1947. Mr. Talboys was a pioneer in the development of track maintenance machines. The first such machine to be built by the Railway Equipment Division was a track shifter, which was in-

troduced in 1925. The mechanical tie adzer was introduced in 1929, and was followed by the screw-type power jack and the mechanical spike puller. An announcement by the company states that these three machines were the first specialized units for track maintenance work.

During World War II, Mr. Talboys directed the simplication of manufacturing and testing of propulsion engines for baby flat tops and torpedo tube mounts manufactured by Nordberg. He took an active part in the formation and activities of several railroad supply organizations. In 1937 he was president of the Track Supply Association (now part of the Association of Track and Structure Suppliers), and in 1939 he became president of the National Railway Appliances Association.

### **Helps From Manufacturers**

The following compilation of literature—including pamphlets and data sheets—is offered free to railroad men by manufacturers to the railroad industry. To receive the desired information, write direct to the

TRACK EQUIPMENT. A new booklet is available which describes and illustrates the Mannix line of track-maintenance equipment, which now is being offered for sale as well as lease. Units described include the single-track and double-track plows for removing fouled ballast, the ballast sled for skeletonizing and redistributing crib material and the Auto-Track for plowing, removing ties, sledding ballast and alining track. Features of the units are pointed out. The booklet includes a large number cf photographs showing how the units are used and a brief history of the development of Mannix equipment. Mannix International, Inc., Dept. RTS, Minneapolis 22, Minn.

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MULTIPLE TAMPER. A bulletin is available which describes and illustrates the Racine Oct-a-Gun Gang Tamper. Designated RRC-117-BOW, the bulletin points out the features of the machine, which is stated to be a split-head multiple tamper, including dual-action tamping process and controllable tamping patterns. Specifications are included. (Write: Racine Hydraulics & Machinery, Inc., Dept. RTS, 2000 Albert St., Racine, Wis.)

POLE BUILDINGS. Features of Koppers' pre-engineered pole buildings are pointed out in a new 4-page, 2-color bulletin. The bulletin, W-389, describes and illustrates three models of pole buildings—the Model K-102 flat-top type, the Model K-103 clear-span type and Model K-104 bay-gable type. Specifications are given on each model, including pole spacing, widths, lengths, heights, framing and composition of exterior walls and roof. (Write: Koppers Company, Inc., Wood Preserving Division, Dept. RTS, 750 Koppers Bldg., Pittsburgh 19, Pa.)

GLASSWARE. A new six-page bulletin is available which describes and illustrates the Corning line of railroad glassware. Designated LS-R-1, the bulletin contains information on glass lenses, reflectors, globes and chimneys. Characteristics of standard signal glasses are given and the optical qualities and prismatic patterns are detailed in charts and drawings. Other information presented in the bulletin includes sizes, focus data, colors and recommended applications. (Write: Corning Glass Works, Dept. RTS, Corning, N. Y.)

PRESTRESSED CONCRETE. The use of Pozzolith in prestressed concrete is discussed in a 20-page bulletin. Designated MBR-P-13, the bulletin describes and illustrates 16 projects in which the material was used. Projects described include a building constructed by the lift-slab method, a wharf utilizing prestressed piles, a building constructed with 102-ft girders, a bridge utilizing 120-ft girders and a warehouse having lightweight roof slabs. (Write: The Master Builders Company, Dept. RTS, Cleveland 18, Ohio.)

WALL PANELS. The SANPAN line of structural sandwich building panels is described and illustrated in a new catalog. The catalog points out the features of the panels, including translucent wall panels, window wall units and curtain wall insert panels. The catalog also includes specifications on four types of translucent insulating panels, a table showing suggested maximum spans, a wind load correlation chart and installa-tion details for wall systems and window wall units. The different types of grid designs are also shown. (Write: Panel Structures, Inc., Dept. RTS, 45 Greenwood Ave., East Orange,

SAFETY BELTS. The complete line of M-S-A safety belts is described and illustrated in a new eight-page bulletin. Designated 1302-6, the bulletin provides information on various types of web and leather belts, including body-type, harness-type and suspension-type and linemen's belts and straps. The features of the belts are pointed out and the tensile strengths of web belts are given. (Write: Mine Safety Appliances Company, Dept. RTS, 201 No. Braddock Ave., Pittsburgh 8, Pa.)

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(Continued from page 101)

Lowbowl design and have a struck capacity of 21 cu yd.

The new torque divider power shift transmission combines planetary gear groups with a torque converter. It has three speed range positions which are selected by the operator. Within each speed range are three drives—torque divider drive, direct drive and overdrive. The drive is automatically selected by the trans-

mission to meet changing power requirements. The torque divider drive is the first drive selected in each speed range. When the transmission is in this position 25 per cent of engine torque is channeled through the converter and 75 per cent directly to the power train. As trivel speed increases the transmission automatically shifts into direct drive and then to overdrive, all within the speed range selected by the operator. An indicator is

mounted on the dash board to indicate to the operator when the machine should be shifted into the next higher speed range. In addition, a special loading range position is provided in order to obtain maximum rimpull during loading operations. This position holds the transmission in torque divider drive to permit matching scraper speed to the pusher throughout the loading process. Caterpillar Tractor Company, Dept. RTS, Peoria, Ill.

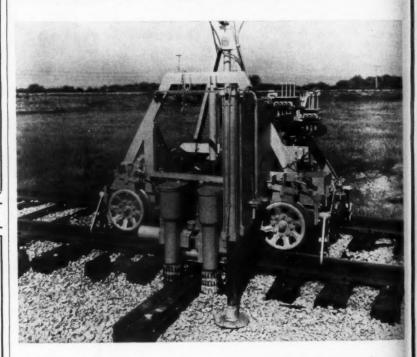


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THE MATISA dual-purpose tie-renewal machine incorporates a hydraulic track jack and rail clamps in the 1961 models. With the new units the self-propelled machine can remove and insert ties while

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